Parks Canada

GROS MORNE NATIONAL PARK
VISITOR USE SURVEYS
JULY/AUGUST, 1986

GROS MORNE NATIONAL PARK
VISITOR USE SURVEYS
JULY/AUGUST, 1986

L. D. Logan
Socio-Economic Analysis Unit
Policy Planning & Research
Atlantic Regional Office
Environment Canada - Parks
March, 1987

TABLE OF CONTENTS

Executive Summary

PART 1: MAIN EXIT TRAFFIC PARTITION SURVEY

PART 11: TROUT RIVER TRAFFIC PARTITION SURVEY

PART 111: LOMOND DAY USER SURVEY

PART 1V: CAMPGROUND HANDBACK SURVEY

PART V: REPORT ON TRAIL USE

APPENDIX A: QUESTIONNAIRES

APPENDIX B: VEHICLE CLASSIFICATION AND NEWFOUNDLAND ORIGIN ZONES

APPENDIX C: GLOSSARY OF TECHNICAL TERMS

EXECUTIVE SUMMARY
1986 GROS MORNE SURVEYS

HIGHLIGHTS

1.0 MAIN EXIT TRAFFIC PARTITION SURVEY

- 80,591 vehicles exited the park from July 1 - August 31, 1986.

- 66,852 vehicles exited during survey hours (8:00 A.M. - 8:00 P.M.).

- 15,448 vehicles (23% of 66,852) were final exit visitor vehicles.

- Average party size was 2.9 persons.

- Total July/August attendance is estimated at approximately 45,000 visitors (excluding enclave resident attendance which will be estimated in 1987).

- 52 percent of Gros Morne visitors were from Newfoundland.

- 20 percent of visitors were from the U.S.

- Campers stayed an average of 1.8 nights in the park.

- Day Users averaged 3.6 hours per visit.

2.0 TROUT RIVER TRAFFIC PARTITION SURVEY

- 10,020 vehicles exited the Trout River area from July 1 - August 31, 1986.

- 5,765 vehicles exited during survey hours (10:00 A.M. - 6:00 P.M.).

- 35 percent of surveyed vehicles, 1,988 vehicles or 6,759 persons, were on recreational trips (an average party size of 3.4 persons).

- 531 vehicles or 1,593 persons were visiting friends or relatives (an average party size of 3.0 persons).

- 21 percent of traffic during survey hours were Trout River residents; in total, 78 percent were from Newfoundland.

- Four charter buses were recorded, too small a number to produce a reliable population estimate.

- Visitation to Trout River Pond by recreational visitors and VFR's is relatively high: 41 percent and 51 percent respectively or 2,771 and 820 visitors.

3.0 LOMOND DAY USER SURVEY

- 1,979 vehicles entered Lomond from July 1 - August 31, 1986 between 11:00 A.M. and 7:00 P.M.

- 1,249 vehicles (63 percent) were day users: 4,000 persons.

- Average party size was 3.2 persons.

- Use was highest on July weekends: averaging 42 day user vehicles per day or 134 persons.

- The peak day recorded 74 day user vehicles or 237 persons.

- Only 1.7 percent of day user vehicles brought boats.

- 76 percent were Newfoundland residents.

- 75 percent of Newfoundlanders were repeat users of Lomond and 20 percent of non-Newfoundlanders were repeat users. Overall, 62 percent of day users were repeat users of the day use area.

4.0 CAMPGROUND HANDBACK SURVEY

- During July and August, 1986, Berry Hill registered 3,026 camper party stays; Shallow Bay had 628; and Lomond had 568 party stays.

- Average party size was 2.7 persons at Berry Hill; 3.0 at Shallow Bay; and 2.9 persons at Lomond.

- Berry Hill campers stayed an average of two nights; Shallow Bay and Lomond campers stayed 1.3 nights.

- Berry Hill campers generally made more extensive use of park facilities and services.

- Non-Newfoundlanders were in the majority at Berry Hill (64 percent) and Lomond (55 percent). At Shallow Bay, Newfoundlanders were in the majority (64 percent).

- U.S. campers were 28, 21 and 13 percent of the total at Berry Hill, Lomond and Shallow Bay respectively.

- 31 percent of Berry Hill camper parties had stayed there before, compared to 44 percent for Shallow Bay and 22 percent for Lomond.

- Satisfaction levels were generally high: the lowest rating was 74 percent either satisfied or very satisfied with Shallow Bay facilities.

5.0 TRAIL USE STUDY

- During the peak season, Western Brook Pond averaged 133 users per day or an estimated 8,246 users in July/August, 1986.

- Bakers Brook Falls Trail averaged 37 users per day or 2,263 users in July/August, 1986.

- Stanleyville Trail averaged 8 users per day or 500 users in July/August, 1986.

DETAILED SUMMARY

In July and August, 1986, four surveys and a trail count study were conducted in Gros Morne. These were: the Main Exit Traffic Partition Survey; the Trout River Road Traffic Partition Survey; the Lomond Day User Survey; the Campground Handback Survey; the Trail Use Study. Since these studies had different objectives and used different data collection techniques, they are discussed separately.

1.0 Main Exit Traffic Partition Survey

At present, one traffic counter and an eleven-year-old traffic formula are used to estimate attendance. Since the park has three main exits and since traffic patterns (i.e., mix of visitor and non-visitor vehicles) have changed since 1976, there was a clear need to develop a different attendance counting system.

A traffic partition survey of exiting vehicles was conducted for the purpose of establishing a peak season traffic formula for non-enclave residents only (a formula for enclave residents will be developed in 1987). The survey also gathered some basic park use data for visitor profile purposes.

The survey conforms to the attendance measures proposed by the Socio-Economic Branch, Headquarters. The new attendance formulation consists of "...three hierarchically ordered measures of use, based on purpose of entry..."

These three measures are:

(1) Entries - Persons entering an area open or accessible to the public, which is an officially identified natural or historic unit of the Parks Heritage Preservation and Presentation Program, irrespective of entry purpose or its relationship to the Park mandate.

(2) Visitors - Persons entering an area open or accessible to the public, which is an officially identified natural or historic unit of the Parks Heritage Preservation and Presentation Program, during operational periods for purposes associated with the Parks mandate.

(3) Visitor - Users - Visitors who make use of at least one Parks facility or service other than the main or through roadways in the course of their visit.

Although our survey was of exiting vehicles, we can assume that exiting vehicles equal entering vehicles over the survey period.

In conformity with the proposed S.E.B. attendance measures, those respondents recorded as being "on a recreational trip to the park" or "just passing through the park on a pleasure trip" are considered to be on mandate-related visits and are classed as visitors. Other respondents (i.e., visiting friends/relatives, commercial or personal business) are considered to have made a mandate-related visit (and are classed as visitors) if they use one or more park facilities.

The survey found that 83 percent of all exiting traffic left the park during the 12-hour survey period (8:00 A.M. - 8:00 P.M.). Of these, 23 percent were final exit visitor vehicles and 18 percent were visitor-user vehicles (see Figure 1).

Total July/August, 1986 attendance (excluding enclave residents) is estimated at 44,799 visitors.

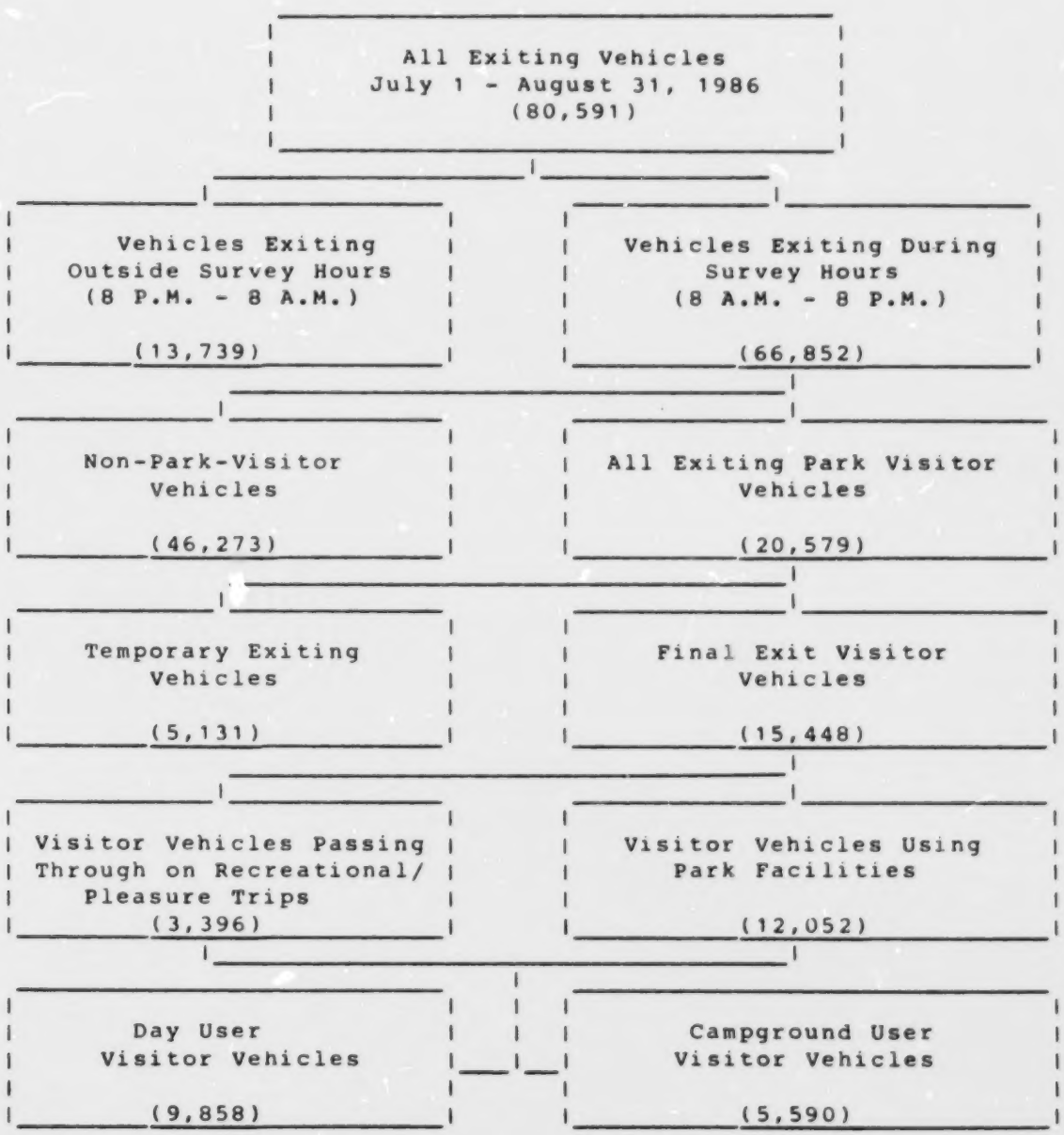
Additional survey work is required in 1987 and 1988 to determine:

(1) park attendance by enclave residents;

(2) shoulder season attendance by enclave residents and other visitors.

FIGURE 1

TRAFFIC PARTITION FLOW CHART - ALL EXITS



2.0 Trout River Traffic Partition Survey

There is a recognized need to develop a data base on visitor use of the Trout River area. As a first step, a traffic survey was conducted in July/August, 1986 between 10:00 A.M. and 6:00 P.M. to gather basic data on visitor use of the town of Trout river and of the Trout river Pond area.

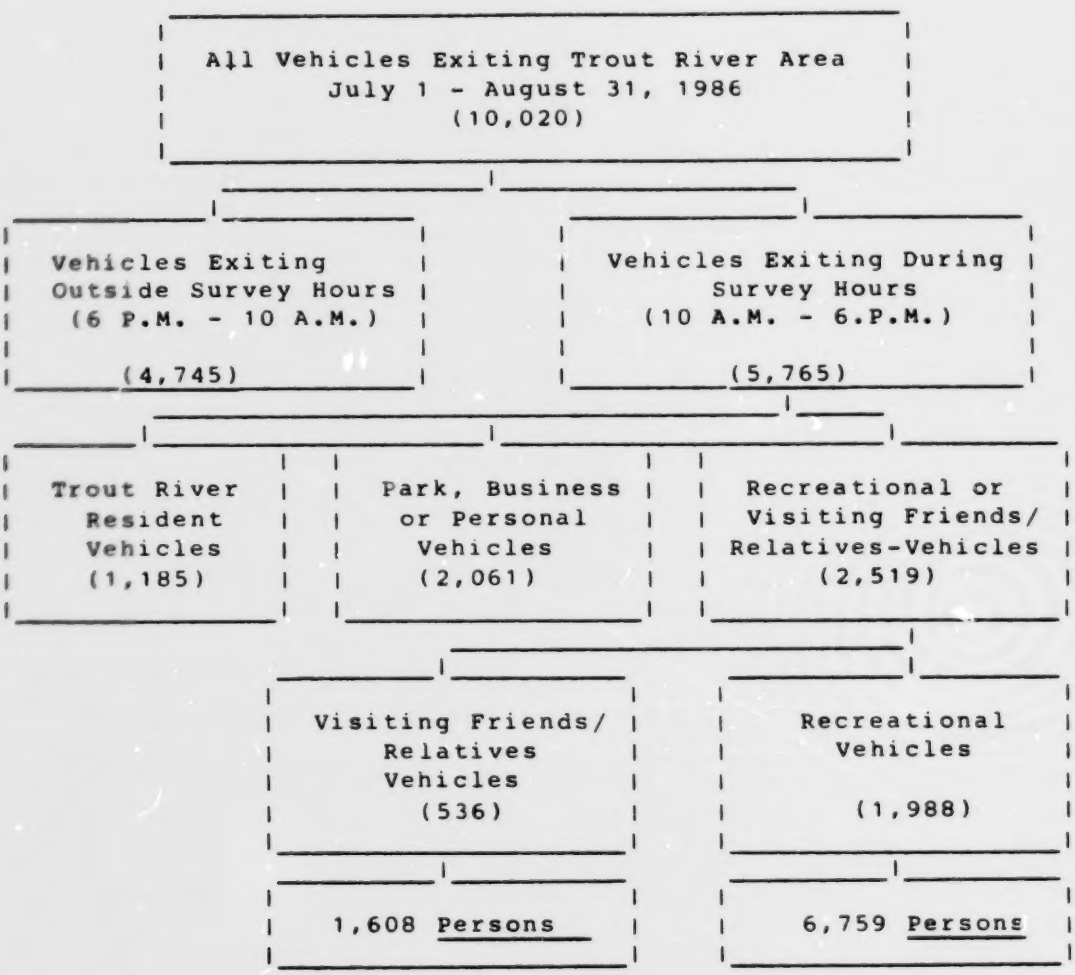
The data gathered will serve as a "pre-development" (i.e., of the Trout River Activity Area) data base, necessary for future monitoring and analysis of trends in use. The data will also yield a traffic formula which can be updated and adjusted as required in future years and applied to an automatic traffic counter.

The respondents of primary interest were those on recreational trips since this group is the greatest potential user of the park facilities planned for Trout River (including a boat tour). Those visiting friends and relatives in Trout River are also a potential but secondary source of visitors to the Trout River Pond Activity Area.

With about 1,988 vehicles on recreational trips on the Trout River Road and 531 vehicles visiting friends or relatives, (6,759 and 1,593 persons respectively) the market potential is still fairly modest but not unexpected considering the lack of visitor use facilities at present. Figure 2 summarizes the basic use data. Only four charter buses were recorded, a number too small to produce a reliable population estimate.

FIGURE 2

TROUT RIVER TRAFFIC PARTITION FLOW CHART



3.0 Lomond Day User Survey

The objective of this survey was to determine numbers and basic characteristics (e.g. origin, party size, vehicle type, boat use, same day re-entries and repeat use) of Lomond day users for input to present and future demand analyses of boat tour and day use facilities.

This survey is the first step of what (after next year's major visitor survey of various facilities) is scheduled to be a bi-annual monitoring program.

The survey found that:

- Of the total estimated vehicle entries from July 1 - August 31, 1986 between 11:00 A.M. and 7:00 P.M. (1,979) 64 percent or 1,270 were day users.

- Deleting same day repeat entries, Lomond received 1,249 day user vehicles, or about 4,000 persons during the survey period.

- July weekends received the highest use at an average of 42 day user vehicles daily. Depending upon length of stay (to be established next year) the 38-space parking lot probably accommodated all vehicles even on the peak day, August 3, which recorded 74 day user vehicles.

- The eight double parking spaces are more than sufficient to accommodate the very small percentage of over-sized vehicles (only .5 percent had motorhomes).

- Most day users, 76 percent, are residents of Newfoundland.

- 75 percent of Newfoundlanders have visited Lomond previously while 20 percent of out-of-province visitors have done so.

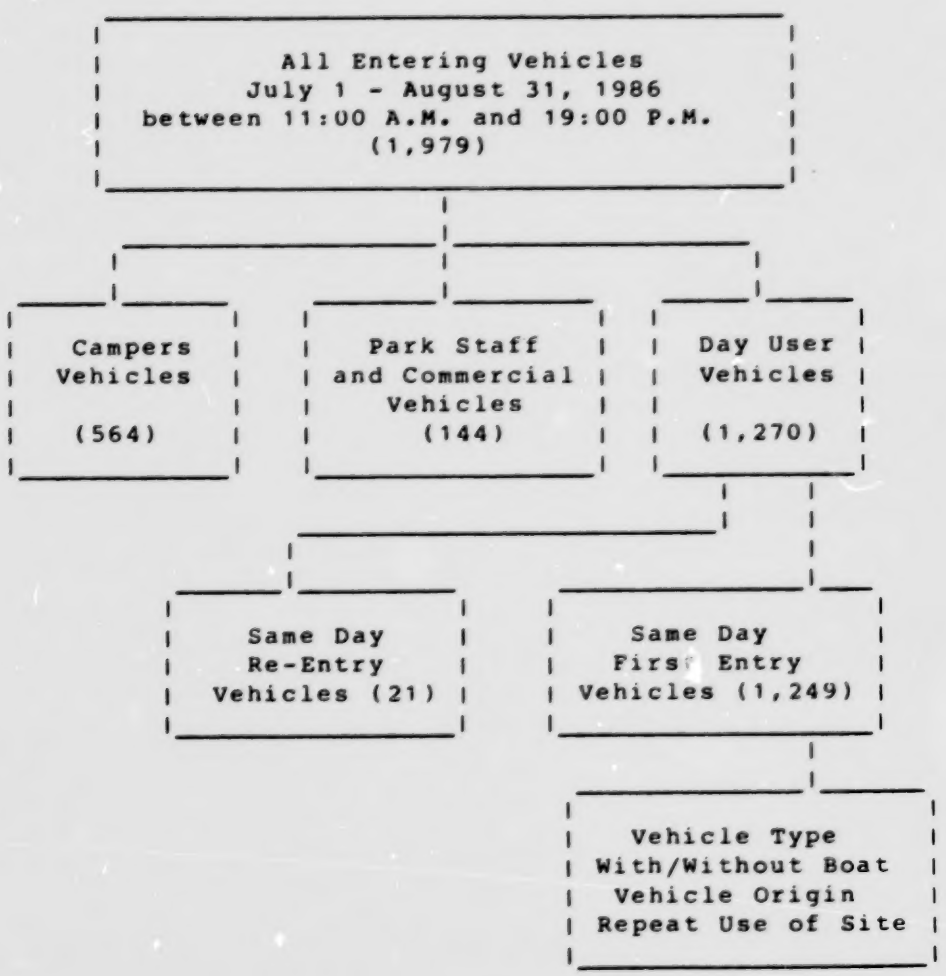
- Considering that only 1.7 percent of day user vehicles brought boats, they are obviously not yet making much use of the new boat launch. Use of the boat launch by day users (and campers) should be monitored in future.

- The question of whether or not bringing a boat makes a difference in a day user's potential use of a boat tour on Bonne Bay cannot be answered definitively until next year's more in-depth survey. However, it must be recognized that with 4,000 day users in total, the potential is quite limited at present (although it must also be noted that campers are a potential source and, perhaps more importantly, Lomond would probably only be a stop on an existing tour).

The attendance data are summarized in Figure 3.

FIGURE 3

LOMOND TRAFFIC PARTITION FLOW CHART



4.0 Campground Handback Survey

The campground survey at Berry Hill, Shallow Bay and Lomond was actually initiated as a pilot test of a more comprehensive survey planned for 1987. However, since it was implemented in mid-July (July 17, 18 and 19) and continued to August 31, 1986, it should be reasonably representative of peak-season visitors.

The survey found that:

- During July/August, 1986, Berry Hill had 3,026 camper parties; Shallow Bay had 628; and Lomond had 568 parties.

- In most respects, Berry Hill camper parties made much more extensive use of park facilities and services than Shallow Bay and Lomond campers.

- Except for Shallow Bay, non-Newfoundland campers are in the majority: 64 percent at Berry Hill; 55 percent at Lomond; and 35 percent at Shallow Bay.

- U.S. campers (and other foreign, less than 2 percent) were strongly represented at 28, 21 and 13 percent of total camper parties at Berry Hill, Lomond and Shallow Bay respectively.

- Repeat stays at the particular campground were highest at Shallow Bay (44 percent); next highest at Berry Hill (31 percent); and lowest at Lomond (22 percent).

- Average length of stay was highest at Berry Hill (two nights). Shallow Bay and Lomond averaged 1.3 nights.

- The most popular activities at all campgrounds were hiking and sightseeing.

- The most heavily-used trail was Western Brook Pond (38, 15 and 18 percent of camper parties at Berry Hill, Shallow Bay and Lomond respectively, reported hiking this trail).

- Visitor Reception Centre use was high for Berry Hill camper parties (66 percent) but fairly low for Shallow Bay and Lomond (21 and 26 percent).

- Use of the Western Brook Pond Boat Tour during their campground stay was 35, 21 and 14 percent of camper parties respectively for Berry Hill, Shallow Bay and Lomond.

- Overall satisfaction with their stay at the campground was high, with 85-95 percent of camper parties being either satisfied or very satisfied.

- Campground facilities were rated lower than the overall experience but still high with 91, 74 and 79 percent being satisfied or very satisfied at Berry Hill, Shallow Bay and Lomond respectively.

5.0 Trail Use Study

Automatic trail counters were installed on three park trails. The periods covered were from June 20 to August 17, 1986, on Western Brook Pond and Bakers Brook Falls trails. Counts were taken from July 25 to August 26 on the Stanleyville trail. A detailed report was prepared by Visitor Services, Gros Morne National Park.

Estimates of average daily number of trail users during July and August are:

(a) Western Brook Pond Trail : 133 Users/Day
(b) Bakers Brook Falls Trail : 37 Users/Day
(c) Stanleyville Trail : 8 Users/Day

On its peak day (July 27), Western Brook Pond Trail had 421 users. Assuming that the average daily figures are representative of peak season use, estimates of total peak season (July/August) use are:

(a) Western Brook Pond Trail : 8,246 Users
(b) Bakers Brook Falls : 2,263 Users
(c) Stanleyville : 500 Users

GROS MORNE NATIONAL PARK
MAIN EXIT TRAFFIC PARTITION SURVEY 1986

TABLE OF CONTENTS

Page

LIST OF TABLES i

LIST OF FIGURES ii

1.0 INTRODUCTION 1

2.0 RESEARCH OBJECTIVES 2

3.0 RESEARCH DESIGN 4

4.0 BASIC CONCEPTS 6

5.0 RESULTS 8

5.1 Sampling Rates, Response Rates and Population Estimates 8

5.2 Exits/Entries, Visitors and Visitor-Users 8

5.3 Trip Characteristics: All Exiting Vehicles 14
5.3.1 Peaking Patterns 15
5.3.2 Trip Purpose 15
5.3.3 Trips Generated by Enclave Residents 16
5.3.4 Transportation Mode 16

5.4 Visitor Profile 17
5.4.1 Location of Interview 18
5.4.2 Purpose of Visit 18
5.4.3 Party Size 18
5.4.4 Origin 18
5.4.5 Transportation Mode 19
5.4.6 Monthly Visitor Use Patterns 20
5.4.7 Daily Use Patterns 21
5.4.8 Average Length of Stay (Visitor-Users Only). 22
5.4.9 Facility Use 22

6.0 CONCLUSION 23

LIST OF TABLES

		Page
1.	TRAFFIC VOLUMES BY MONTH, DAY TYPE AND EXIT (ALL EXITING VEHICLES)	15
2.	TRIP PURPOSE BY EXIT (ALL EXITING VEHICLES)	16
3.	TRANSPORTATION MODE BY EXIT (ALL EXITING VEHICLES)	17
4.	VISITOR ORIGIN PATTERNS	19
5.	MODE OF TRANSPORTATION (VISITOR VEHICLES)	20
6.	EXITING VISITOR VEHICLES BY MONTH AND DAY TYPE	21
7.	TIME OF EXIT (VISITOR VEHICLES)	21
8.	PERCENT OF VISITOR VEHICLES USING SELECTED FACILITIES	22

LIST OF FIGURES

		Page
1.	TRAFFIC PARTITION SURVEY LOCATIONS	3
2.	TRAFFIC PARTITION FLOW CHART -ALL EXITS	10
3.	TRAFFIC PARTITION FLOW CHART - HIGHWAY 430 SOUTH	11
4.	TRAFFIC PARTITION FLOW CHART - HIGHWAY 430 NORTH	12
5.	TRAFFIC PARTITION FLOW CHART - HIGHWAY 431 AT LOMOND	13

1.0 INTRODUCTION

There has been a growing recognition that the present system of calculating total attendance for Gros Morne National Park must be improved upon. At present, one traffic counter and a ten-year old traffic formula are used to estimate attendance. Since the park has three main exits and since traffic patterns (i.e., mix of visitor and non-visitor vehicles) have changed since 1976, there was a clear need to update the attendance counting system.

In July/August of 1986, a traffic partition survey of exiting vehicles was conducted for the purpose of establishing a peak season traffic formula for non-enclave residents only (a formula for enclave residents will be developed in 1987). The survey also gathered some basic park use data for visitor profile purposes.

2.0 RESEARCH OBJECTIVES

The research objectives were:

(a) replace existing traffic counter/outdated formula with a more accurate attendance counting procedure;

(b) determine visitor typology and percentage of non-visitor and repeat traffic.

Attaining these objectives required exit interviews at the three main park exits shown on Figure 1. The questionnaire (see Appendix A) gathered data on the following:

(a) language of interview;

(b) transportation mode;

(c) permanent residence;

(d) purpose of trip;

(e) temporary or final exit;

(f) stop vs. pass-through traffic;

(g) use of park facilities;

(h) length of stay;

(i) party size;

(j) two questions on visitation to L'anse aux Meadows and Port au Choix, unrelated to the objectives of this survey.

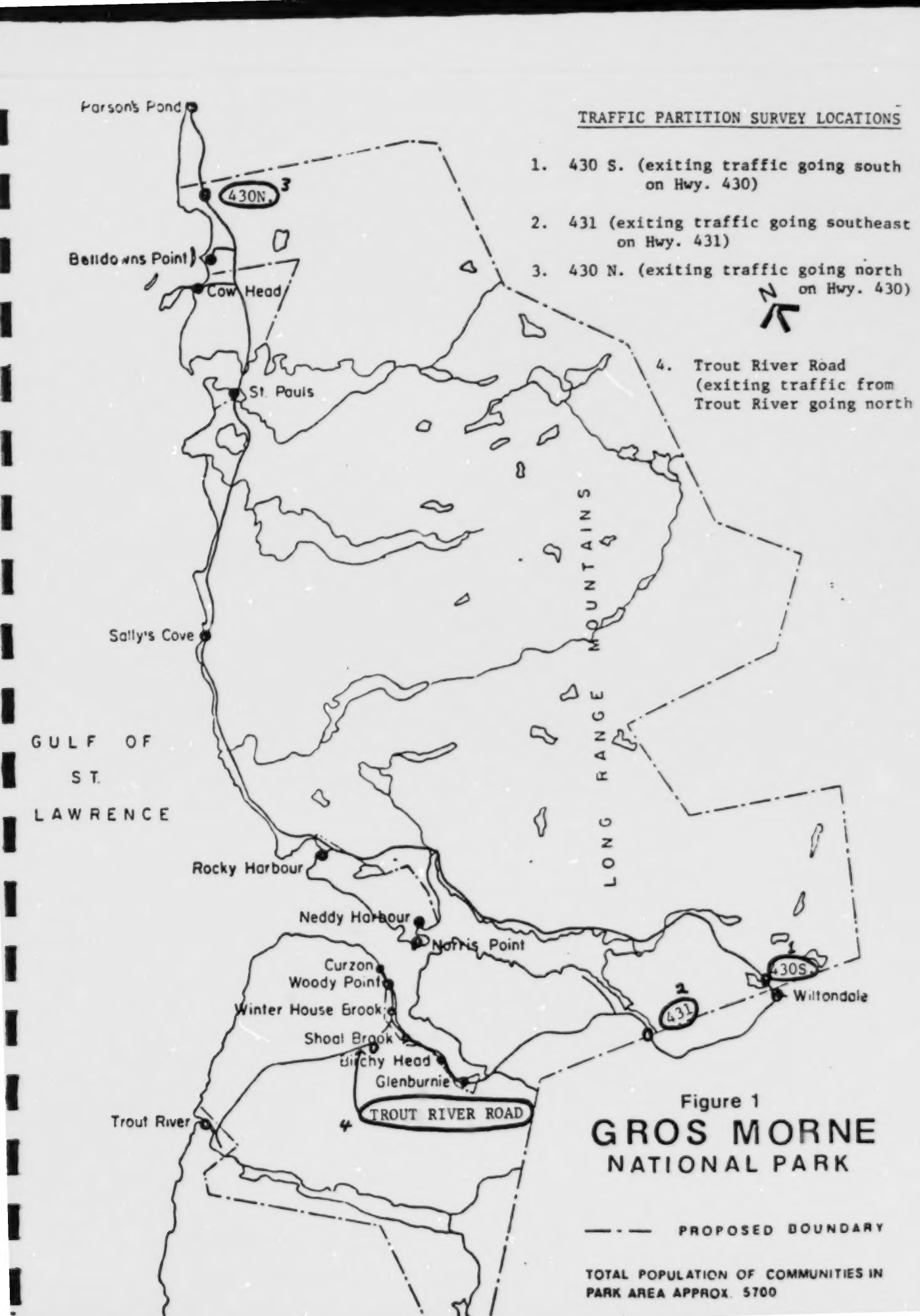


Figure 1

GROS MORNE NATIONAL PARK

3.0 RESEARCH DESIGN

The survey population was all visitor and non-visitor vehicles exiting the park at the three points specified during the hours of 8:00 A.M. to 8:00 P.M. from July 1, 1986 to August 31, 1986, inclusive.

During the 62-day survey period, two exit points (Highway 430S. and 431) were sampled for 16 days. Highway 430 N. was sampled for 18 days. Each sampling day consisted of one six-hour sampling block.

Respondents were selected on a floating basis: after completing an interview, the next vehicle/party to exit was selected for an interview. Since the exiting party is the unit of analysis, the selection of a respondent did not need to be random: it was assumed that the driver of the vehicle could respond to the questionnaire for all party members.

During the interview periods, hand counts were kept of all exiting vehicles. From July 29 to August 14, 24-hour automatic hourly traffic counts were also kept (unfortunately, the counters were not available for most of July. Also, the late August counts were unusable due to a technical problem).

Because of the traffic counter problems, the intended weighting scheme had to be modified. The automatic traffic counts available were assessed as to their representativeness of the July/August survey period. The survey population was estimated independently from the hand counts and the automatic traffic counts. The population estimates obtained for Highway 431 were virtually identical. For Highway 430S. and 430N., the hand count population estimates were about 3,000 and 4,000 lower, respectively, than the estimates based on the automatic counter. However, survey staff reported missing some vehicles on this busier highway, which

explains the lower count. It was concluded that the hourly automatic counts could be used to weight the data.

Weighting was done by three-hour time blocks and by weekend and weekday. Daytype weights were obtained by the formula:

$$\frac{\text{(Avg. Vehicles by Daytype,) (No. of July/August) (Weekdays or Weekend Days)}}{\text{(8:00 A.M. - 8:00 P.M.) No. of Interviews by Daytype}} = \frac{N}{n}$$

N Weekday or Weekend Weight

4.0 BASIC CONCEPTS

Most concepts used are either self-explanatory, implicitly defined in the questionnaire, or defined in the coding manual (see Appendices A and B). The major exceptions concern the concepts of visitor and non-visitor.

The concepts developed for this survey were intended to conform as closely as possible to the anticipated attendance measures proposed by the Socio-Economic Branch, Headquarters. The new attendance formulation consists of "... three hierarchically ordered measures of use, based on purpose of entry..."

These three measures are:

(1) Entries - Persons entering an area open or accessible to the public, which is an officially identified natural or historic unit of the Parks Heritage Preservation and Presentation Program, irrespective of entry purpose or its relationship to the Park mandate;

(2) Visitors - Persons entering an area open or accessible to the public, which is an officially identified natural or historic unit of the Parks Heritage Preservation and Presentation Program, during operational periods for purposes associated with the Parks mandate;

(3) Visitor - Users - Visitors who make use of at least one Parks facility or service other than the main or through roadways in the course of their visit.

Although our survey is of exiting vehicles, we can assume that exiting vehicles equal entering vehicles over the survey period.

The best definition of 'operational period' is probably the V.R.C. operational hours of 9:00 A.M. to 9:00 P.M. This does not correspond exactly to the 1986 survey hours of 8:00 A.M. to 8:00 P.M. (the 1987 survey hours may have to be adjusted to reflect this, depending on the agreed-upon definition of operational period).

Question 9 of the survey asked: "What is the purpose of your present visit to the park?" In conformity with the proposed S.E.B. attendance measures, those respondents recorded as being "on a recreational trip to the park" or "just passing through the park on a pleasure trip" are considered to be on mandate-related visits and are classed as visitors. Other respondents not on park-related business (i.e., those visiting friends/relatives or on commercial or personal business) are considered to have made a mandate-related visit (and are therefore classed as visitors) if they use one or more park facilities.

5.0 RESULTS

5.1 Sampling Rates, Response Rates and Population Estimates

During the survey periods, a high percentage of exiting traffic was stopped: 47 percent on Highway 430 South; 55 percent on Highway 430 North; and 76 percent on Highway 431. Response rates were also high at 95, 96 and 98 percent respectively for the three exits. Total completed interviews were: 1,813 for Highway 430S.; 1,801 for Highway 430N.; and 1,202 for Highway 431.

The pre-survey population estimate (based on 1981 traffic counts) of total exiting vehicles for all three exits was approximately 90,000 for July 1 to August 31, 1986. As Section 5.2 will show, this is about 10,000 higher than the actual estimate (apparently due to lower July/August traffic levels in 1986 compared to 1981 if the existing traffic counter on Highway 430 near the V.R.C. is indicative of traffic flows in general).

5.2 Exits/Entries, Visitors and Visitor-Users

Figures 2-5 are flow charts of the attendance segmentation process for all three exits combined and for each individual exit. The resulting traffic formulae should be based on 8:00 A.M. to 8:00 P.M. counts to eliminate the effects of any future changes in traffic patterns outside of operational hours. The traffic formulae are:

1. (24 - hour Count, All Three Exits) = Entry/Exit Vehicles

2. (8:00 A.M. - 8:00 P.M. Count, All Three Exits) (.23) = Visitor Vehicles

3. (8:00 A.M. - 8:00 P.M. Count, All Three Exits) (.18) = Visitor-User Vehicles

The survey found that 83 percent of all exiting traffic left the park during the 12-hour survey period. Of these, 23 percent were visitor vehicles and 18 percent were visitor-user vehicles.

To calculate total attendance, vehicle counts are multiplied by average party size (based on visitor-users only):

(Vehicle Count) (.23) (2.9) = Visitors
(Vehicle Count) (.18) (2.9) = Visitor-User

To summarize, the 1986 July/August attendance is calculated to be:

1. Total Entry/Exit Vehicles = 80,591 Vehicles

2. (66,852) (.23) = (15,448 Visitor Vehicles) (2.9) = 44,799 Visitors

3. (66,852) (.18) = (12,052 Visitor-User Vehicles) (2.9) = 34,951 Visitor-Users

FIGURE 2
TRAFFIC PARTITION FLOW CHART - ALL EXITS

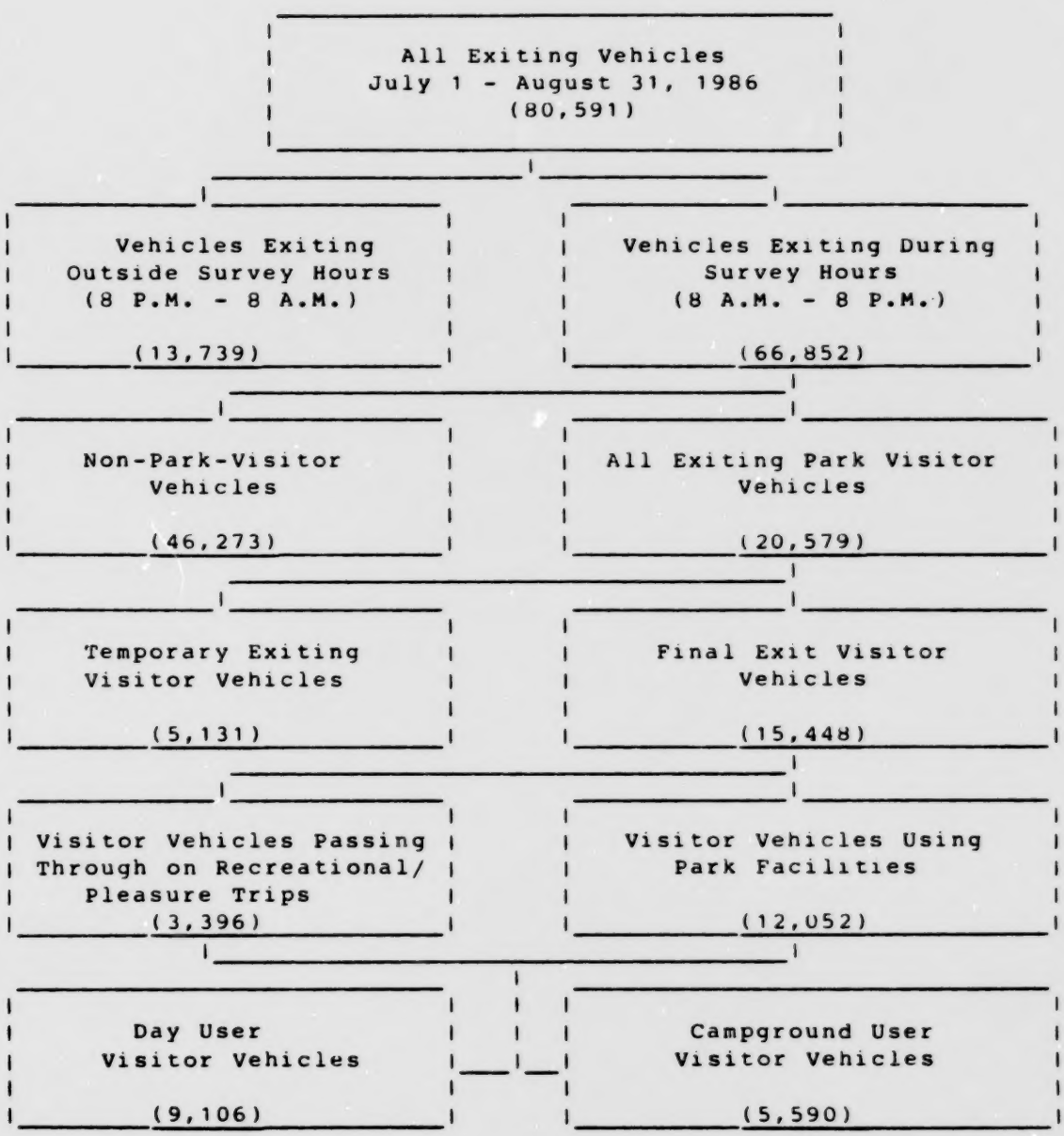


FIGURE 3

TRAFFIC PARTITION FLOW CHART - HIGHWAY 430 SOUTH

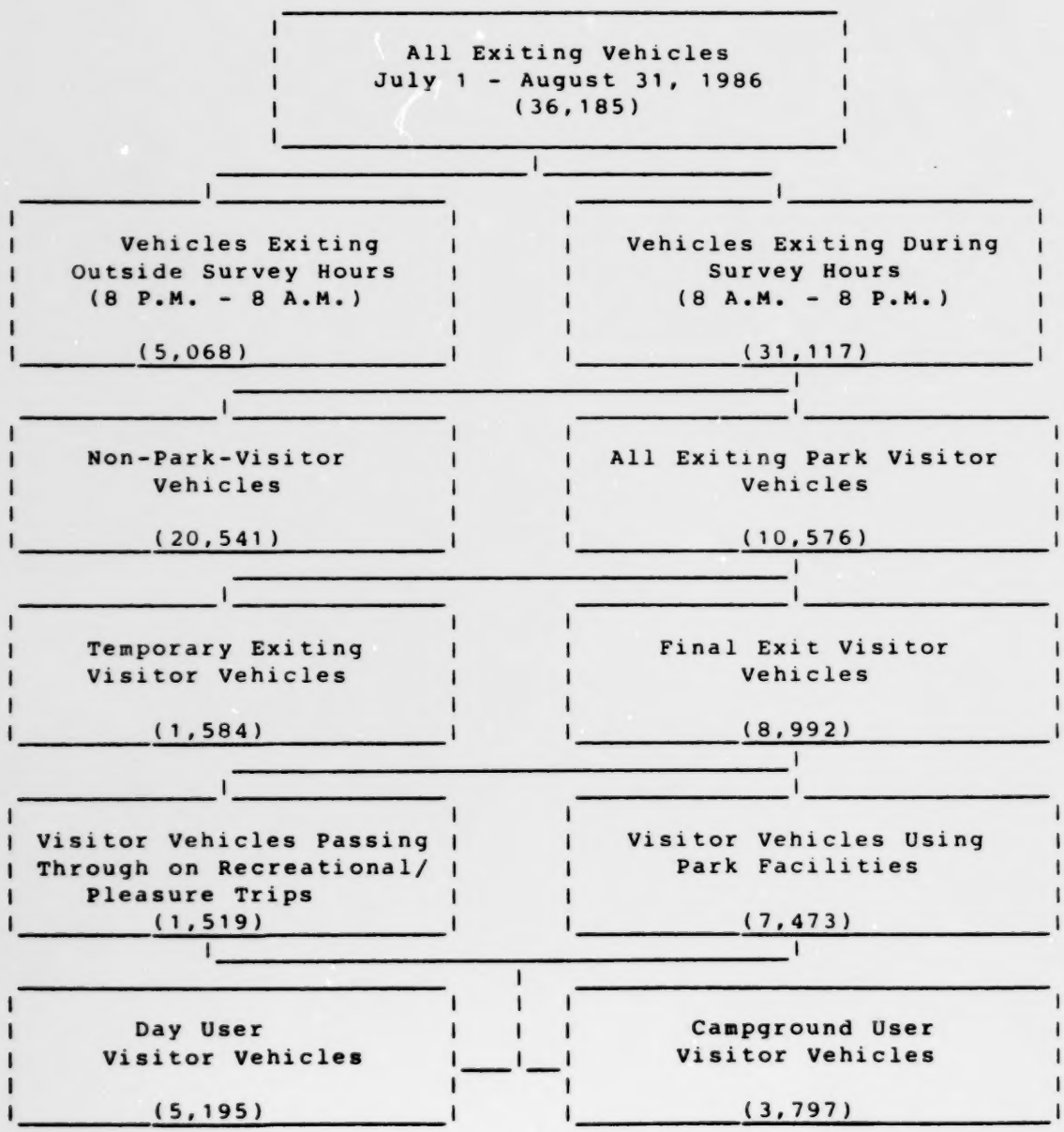


FIGURE 4

TRAFFIC PARTITION FLOW CHART - HIGHWAY 430 NORTH

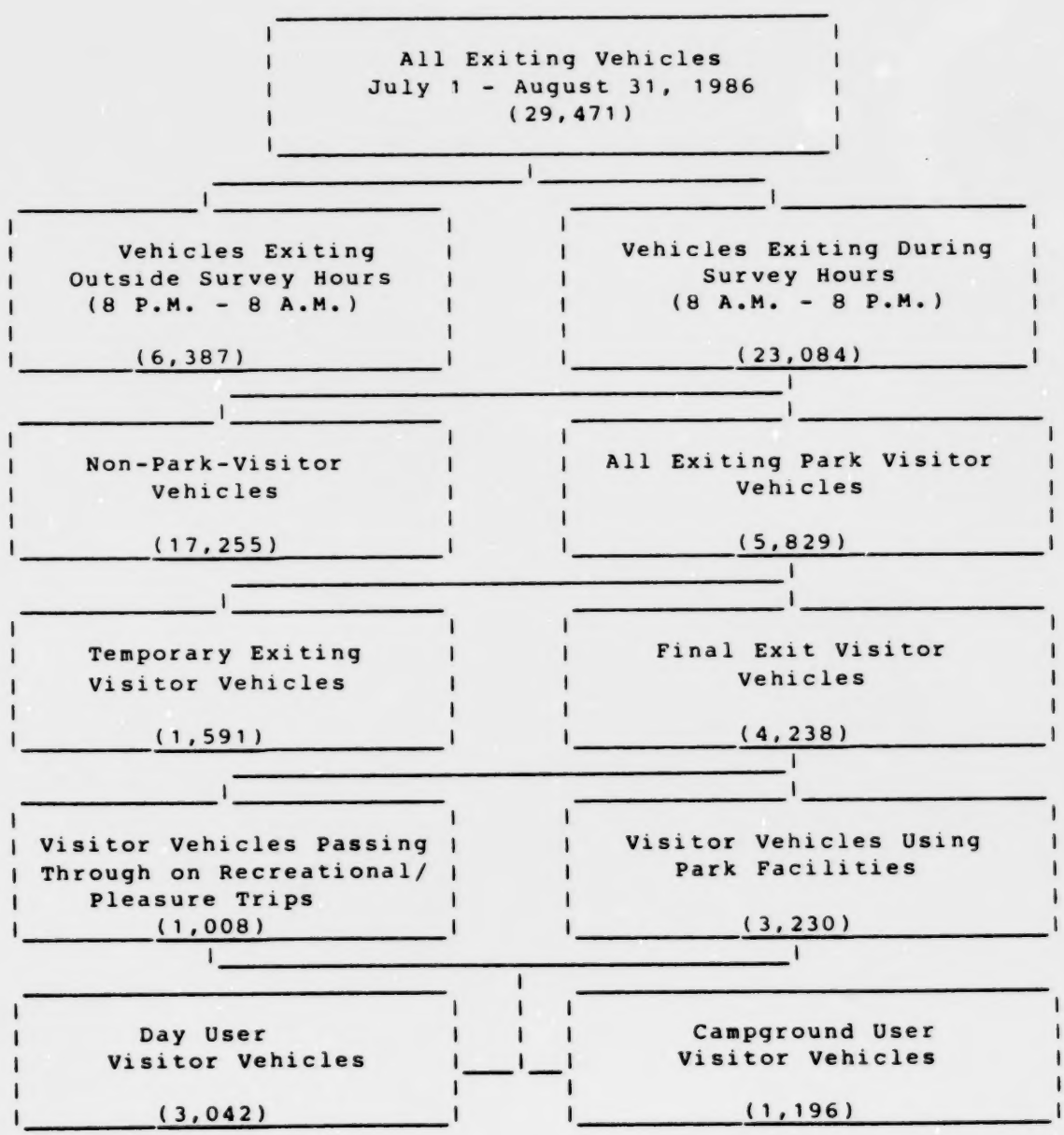
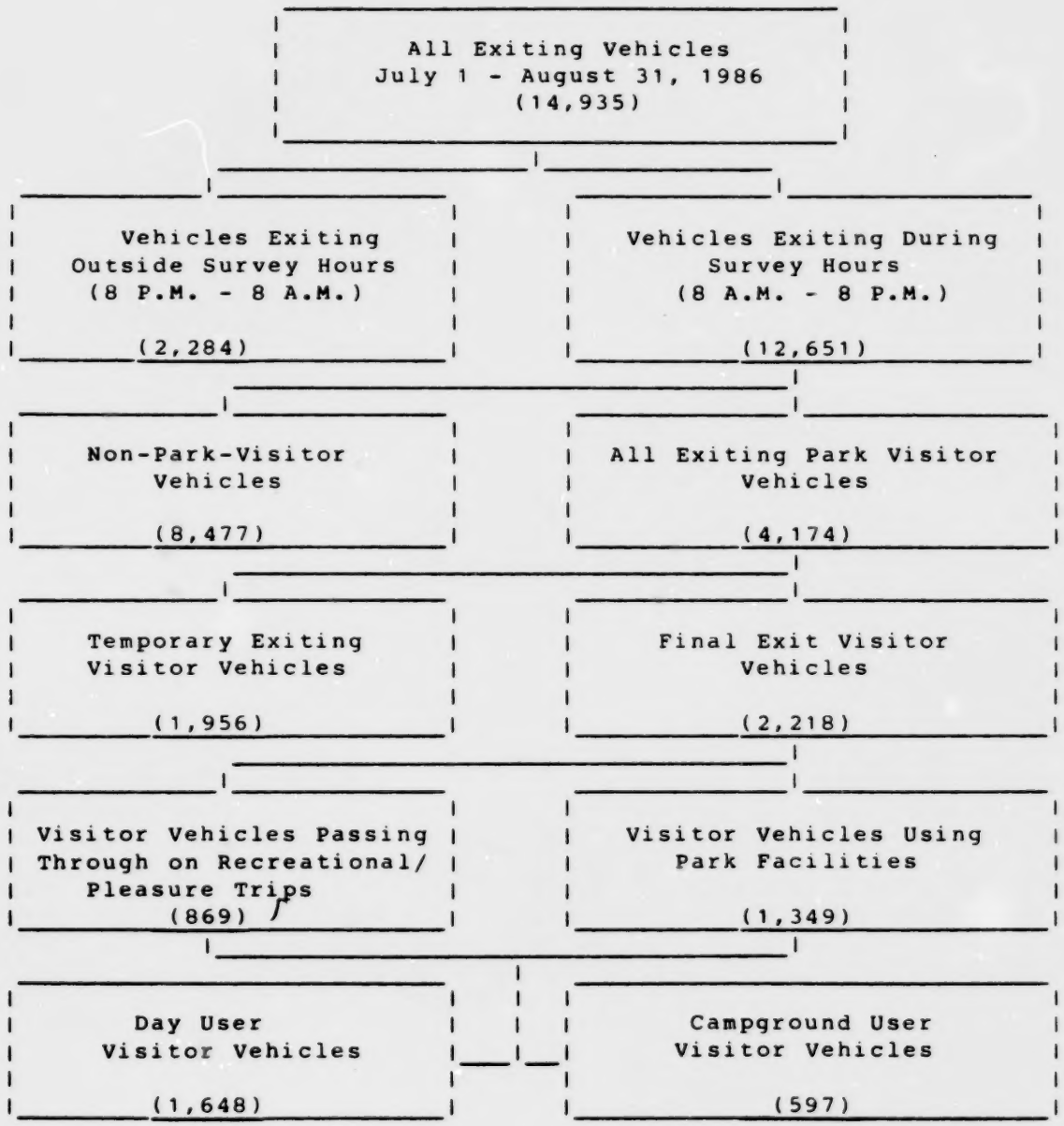


FIGURE 5

TRAFFIC PARTITION FLOW CHART - HIGHWAY 431 AT LOMOND



The proportion of day user to campground user vehicles is not as reliable as the overall visitor vehicle estimate. For example, the estimate of campground user vehicles in Figure 2 is 5,590. Yet, an independent estimate of camper vehicles from the campground registration system (including Green Point and registered backcountry users) yields 4,618 vehicles. In addition to normal sampling error, this may be partly accounted for by unregistered parties: however, it may also be due to Highway 430 visitors who have exited the park going north and are on a return trip through the park. These visitors may have reported campground use which actually occurred on what is operationally defined as a separate visit (e.g., if a visitor vehicle exits the park for one or more nights, it is counted as being on a separate visit upon its return trip through the park).[1]

5.3 Trip Characteristics: All Exiting Vehicles

The park must decide on the location and number of entrance kiosks. In addition to the overall vehicle numbers presented in Section 5.2, data on peaking patterns, trip purpose, number of trips generated by enclave residents, and transportation mode can contribute to this decision. These data should also contribute to operational issues such as staff scheduling.

---

1 During a trip in the park area, one visitor party can generate more than one park visit if it stays outside the park boundary for part of the overall trip. However, the visitor party may not make this distinction - several visits may be considered as one. This explanation is supported by the fact that the traffic survey estimate of average length of stay for campers is 2.8 nights - compared to the 1.8 nights recorded at the campgrounds.

5.3.1 Peaking Patterns

As Table 1 shows, the park does not experience any great surges or strong patterns in overall traffic volumes.

TABLE 1

TRAFFIC VOLUMES BY MONTH, DAY TYPE AND EXIT (ALL EXITING VEHICLES)

MONTH/DAY TYPE	AVERAGE EXITING VEHICLES PER DAY BY EXIT (8:00 A.M. - 8:00 P.M.) 430 S.	430 N.	431
July Weekends	486	391	294
July Weekdays	553	330	196
August Weekends	455	348	139
August Weekdays	475	427	213

There is a general decline in August weekend traffic compared to July weekends, with the strongest drop on Highway 431 (from 294 to 139). August weekday traffic is down on Highway 430 S. but up on the other two exits.

5.3.2 Trip Purpose

For all three exits, the majority of trips are for personal or other business.

TABLE 2

TRIP PURPOSE BY EXIT (ALL EXITING VEHICLES)

PURPOSE	PERCENT BY EXIT		
	430 S.	430 N.	431
1. Recreational	28.2	17.1	29.1
2. Visiting Friends/Relatives	4.9	2.1	10.9
3. Passing Through on a Pleasure Trip	3.7	3.3	2.3
4. Just Passing Through on Personal or other Business	62.0	77.2	54.0
5. Parks Employee on Business	1.2	.2	3.2
6. Park-Related Business	-	.1	.4
	N = 31,117 Vehicles	N= 23,084 Vehicles	N= 12,651 Vehicles

5.3.3 Trips Generated By Enclave Residents

The percent and number of trips generated by enclave residents for the three exits are:

430S : 21.3 % (6,628)
430N : 12.7% (2,932)
431 : 38.2% (4,833)

Not surprisingly, the majority of enclave vehicles exit on Highways 430 S. and 431. On Highway 431, fully 38 percent of exiting vehicles are enclave.

5.3.4 Transportation Mode

Table 3 shows the transportation mode breakdown by exit.

TABLE 3

TRANSPORTATION MODE BY EXIT (ALL EXITING VEHICLES)

TRANSPORTATION MODE	PERCENT BY EXIT 430 S.	430 N.	431
Passenger Vehicle	78.6	80.5	84.0
Travel Trailer	1.7	1.5	.9
Tent Trailer	2.0	.9	.4
Truck or Van Camper	2.5	1.8	1.9
Motor Home	2.7	2.0	1.4
Charter Bus	.3	.3	.4
Scheduled Bus	.9	.2	.3
Park Vehicle	1.0	.3	3.1
Single Axle Trucks Over Two Tons	.8	.9	.9
Tandem Truck	1.3	1.3	1.5
Fifth Wheel Semi-Trailer	3.7	4.7	.3
Fifth Wheel Camper Trailer	-	.1	-
Other Commercial Vehicle	3.3	3.8	4.2
Walk	-	.1	-
Other	1.2	1.7	.7
TOTAL	N = 31,117	N= 23,084	N= 12,651

5.4 Visitor Profile

The summary below presents a composite picture of all visitor vehicles/persons on their final exit (more detailed analyses are available upon request).

5.4.1 Location of Interview (N = 15,448 Vehicles)

- Highway 430 South : 58%
- Highway 430 North : 27%
- Highway 431 : 14%

5.4.2 Purpose of Visit (N = 15,448 Vehicles)

- On a recreational trip to Gros Morne: 69.4%
- Passing through the park on a pleasure trip: 12.2%
- Visiting friends or relatives: 3.4%
- Commercial or personal business: 15%

5.4.3 Party Size

The average party size is estimated at 2.9 persons. This is actually an estimate of average occupants per vehicle. On site surveys at campgrounds and especially day use areas may yield somewhat different estimates, if visitor "parties" occupy more than one vehicle or walk to the site.

5.4.4 Origin

Table 4 shows the origin patterns of visitor vehicles.

TABLE 4

VISITOR ORIGIN PATTERNS

PERMANENT RESIDENCE	PERCENT OF TOTAL (N = 15,448 VEHICLES)
Census Division 5 (Deer Lake/Cornerbrook)	19.0
Census Division 1 (Avalon Peninsula)	12.7
Census Division 9 North of Park	6.9
Other Newfoundland	12.8
Maritimes	9.9
Quebec	3.4
Ontario	11.7
Other Canada	3.8
United States	18.8
Other Foreign	.7
TOTAL	99.7%

Over half (51.6 percent) of Gros Morne visitors are from Newfoundland and most of these are from Census Divisions 5 and 1 (i.e., the Deer Lake/Cornerbrook Area and the Avalon Peninsula). It is worth noting that 18.8 percent of Gros Morne visitors come from the United States (probably mainly from the Northeastern U.S. - a point worth verifying in the 1987 survey).

5.4.5 Transportation Mode

As with the overall transportation mode breakdown presented earlier, the great majority of visitors use passenger vehicles.

TABLE 5

MODE OF TRANSPORTATION (VISITOR VEHICLES)

VEHICLE TYPE	PERCENT OF TOTAL (N = 15,448 VEHICLES)
Passenger	78.6
Motor Home	6.2
Truck or Van Camper	5.5
Tent Trailer	3.2
Travel Trailer	3.3
Other (Incl. Charter Buses, Fifth Wheel Camper Trailers, less than one percent each)	3.2
TOTAL	100%

Table 5 suggests that the demand for over-size parking space (to accommodate motor homes, tent trailers and the 'other' category) is about 21 percent.

5.4.6 Monthly Visitor Use Patterns

Monthly traffic patterns show a fairly even flow, although July is somewhat busier than August.

TABLE 6

EXITING VISITOR VEHICLES BY MONTH AND DAY TYPE

MONTH	PERCENT OF TOTAL (N = 15,448) WEEKEND	WEEKDAY	TOTAL
JULY	18.0	37.6	55.6
AUGUST	17.9	26.5	44.4
TOTAL	35.9	64.1	100%

5.4.7 Daily Use Patterns

Table 5 shows the time of exit by three-hour time blocks.

TABLE 7

TIME OF EXIT (VISITOR VEHICLES)

TIME PERIOD	PERCENT OF TOTAL (N = 15,448 VEHICLES)
8:00 - 11:00	16.4
11:01 - 14:00	33.7
14:01 - 17:00	29.6
17.01 - 20:00	20.3
TOTAL	100%

5.4.8 Average Length of Stay (Visitor-Users Only)

Day Users (N = 3,387 vehicles): 4.1 Hours

Campers (N = 4,618 vehicles): 1.8 Nights (from campground survey)

5.4.9 Facility Use

Although the survey objectives required the segmentation of visitors into users and non-users, information on use of specific facilities was not required. Regardless, some data on facility use were gathered. These data are not as reliable as on-site counts.[1] They do, however, yield some useful data on relative importance of various facilities. (See Table 8)

TABLE 8

PERCENT OF VISITOR VEHICLES USING SELECTED FACILITIES

FACILITY	PERCENT OF VISITOR VEHICLES (N = 15,448)
Visitor Reception Centre	52
Picnic Areas	31
Trails	39
Lookoffs	60
Lobster Cove Lighthouse	27

[1] This is because on-site counts can pick up repeat use during the same visit and only count those members of the party who actually use the facililty.

Facility use is quite high, especially for the Visitor Reception Centre (52 percent) and lookoffs (60 percent). Use of Lobster Cove Lighthouse is also substantial, at 27 percent of visitor vehicles.

6.0 CONCLUSION

New attendance formulae are now available for implementation in July and August of 1987. However, a technique for estimating attendance by park enclave residents will not be established until late 1987. The problem of shoulder season attendance must also be addressed, preferably in 1988.

The survey has also yielded valuable visitor profile data such as origin patterns and facility use. These data are being used in a number of demand analyses.

This report summarizes the survey data fairly briefly. More detailed analyses are available upon request.

GROS MORNE NATIONAL PARK

TROUT RIVER TRAFFIC PARTITION SURVEY

1986

TABLE OF CONTENTS

		Page
	LIST OF TABLES	i
	LIST OF FIGURES	ii
1.0	INTRODUCTION	1
2.0	RESEARCH OBJECTIVE	3
3.0	RESEARCH DESIGN	4
4.0	SAMPLING RATE, RESPONSE RATE AND POPULATION ESTIMATES	5
5.0	RESULTS	7
	5.1 All Users Of The Trout River Road	7
	5.1.1 Traffic Patterns	7
	5.1.2 Origin	7
	5.1.3 Trip Purpose	8
	5.1.4 Transportation Mode	9
	5.2 Recreational Trips and VFR's	11
6.0	CONCLUSION	15

LIST OF TABLES

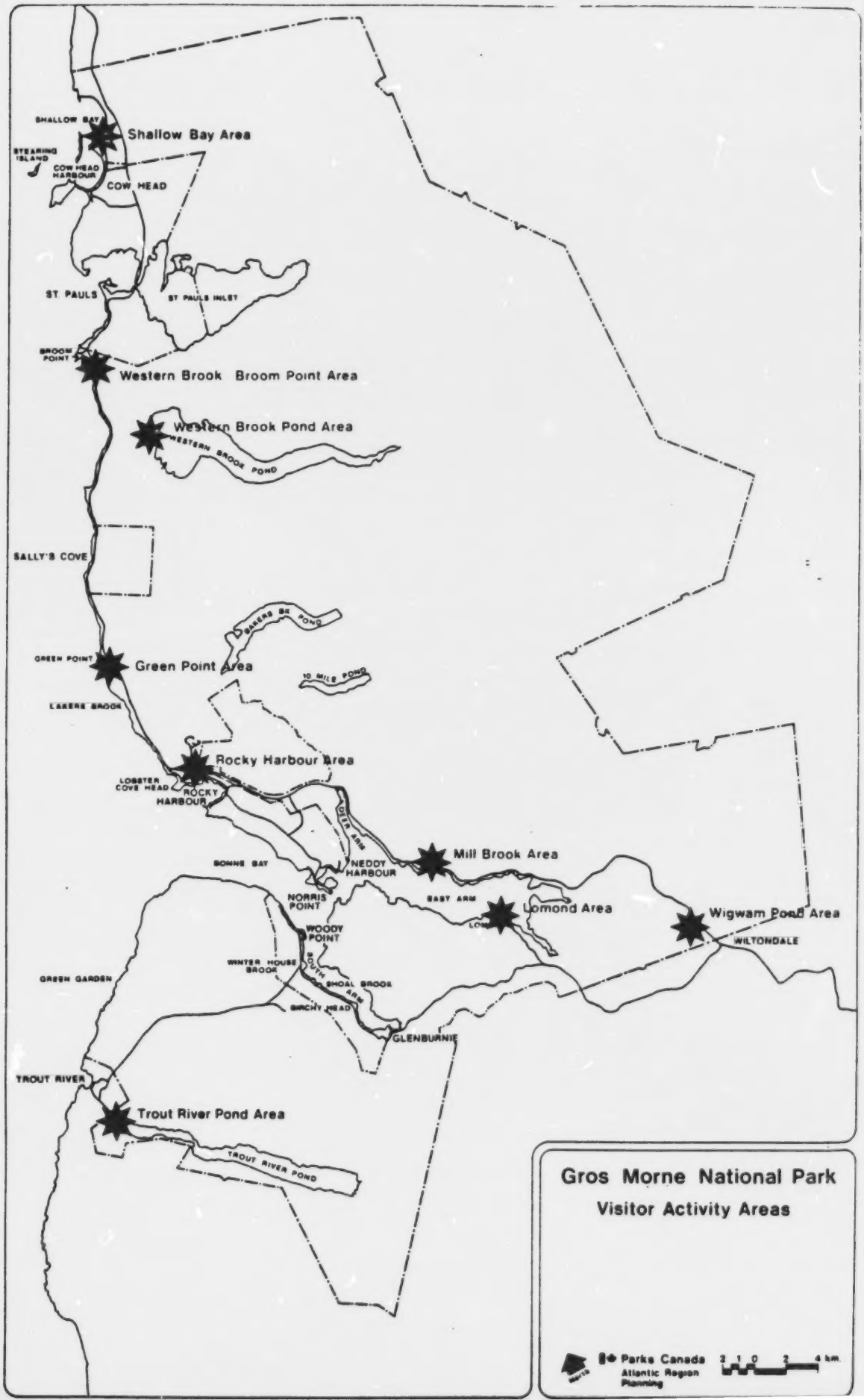
		Page
1.	ORIGIN PATTERNS	8
2.	PURPOSE OF TRIP ON TROUT RIVER ROAD (VEHICLES)	9
3.	MODE OF TRANSPORTATION	10
4.	RECREATIONAL ORIGIN PATTERNS BY VISITATION TO COMMUNITY OF TROUT RIVER (PERSONS)	12
5.	RECREATIONAL AND VFR ORIGIN PATTERNS BY VISITATION TO TROUT RIVER POND (PERSONS)	13
6.	RECREATIONAL AND VFR ORIGIN PATTERNS BY USE OF TABLELANDS EXHIBIT (PERSONS)	14
7.	RECREATIONAL AND VFR ORIGIN PATTERNS BY USE OF GREEN GARDENS TRAIL (PERSONS)	15

LIST OF FIGURES

		Page
1.	GROS MORNE NATIONAL PARK	2
2.	TROUT RIVER TRAFFIC PARTITION FLOW CHART	6

1.0 INTRODUCTION

Trout River Pond is one of nine major visitor activity areas in Gros Morne National Park. A day use area has been constructed and construction will begin on a 35-site campground in 1987. There are also tentative plans to provide a boat tour by 1990. As such, there is a need to develop a data base on visitor use of the area. As a first step in this direction, a traffic survey was conducted in July/August, 1986 to gather basic data on visitor use of the town of Trout River and of the Trout River Pond area.


Shallow Bay Area
SHALLOW BAY
STEARING ISLAND
COW HEAD HARBOUR
COW HEAD
ST. PAULS
ST. PAULS INLET
BROOM POINT
Western Brook Broom Point Area
Western Brook Pond Area
WESTERN BROOK POND
SALLY'S COVE
GREEN POINT
Green Point Area
LAKERS BROOK
Rocky Harbour Area
LOBSTER COVE HEAD
ROCKY HARBOUR
BONNE BAY
NEDDY HARBOUR
Mill Brook Area
NORRIS POINT
WOODY POINT
EAST ARM
Lomond Area
Wigwam Pond Area
WILTONDALE
WINTER HOUSE BROOK
SOUTH ARM
SHOAL BROOK
BIRCHY HEAD
GLENBURNIE
GREEN GARDEN
TROUT RIVER
Trout River Pond Area
TROUT RIVER POND
Gros Morne National Park
Visitor Activity Areas
Parks Canada
Atlantic Region
Planning
3 1 0 2 4 km

2.0 RESEARCH OBJECTIVE

Base data on visitor use of the Trout River area is required for input to present and future demand analyses of campground, day use area and boat tour developments (and also for any private sector developments or services which may be contemplated). The survey objective was to determine the numbers and basic characteristics of visitors to the Trout River area.

Interview data gathered were:

(a) language of interview;
(b) mode of transportation;
(c) permanent residence;
(d) trip purpose;
(e) party size;
(f) visitation to Trout River;
(g) visitation to Trout River Pond;
(h) use of Tablelands Exhibit;
(i) use of Green Gardens Trail.

(See Appendix A for questionnaire)

The information gathered is intended to serve as base "pre-development" (i.e., of the Trout River activity area) data, necessary for future monitoring and analysis of trends in use. The data will also yield a traffic formula which can be updated and adjusted as required in future years and applied to an automatic traffic counter.

3.0 RESEARCH DESIGN

The survey population was all visitor and non-visitor vehicles exiting Trout River going north on Hwy. 431 between 10:00 and 18:00 hours from July 1, 1986 to August 31, 1986. This coverage was considered adequate to determine the market for day use activities and a boat tour.

The questionnaire clearly distinguished between visitors to the town of Trout River and visitors to Trout River Pond, which is in the park and the site of the proposed day use area, boat tour and campground. Visitors to the town only, are presently greater than visitors to the undeveloped pond area; however, depending upon the purpose of their visit, they may be potential users of future park facilities.

For scheduling reasons, the sample selection was not made independently of the main traffic partition survey. A representative, if not independent, sample was obtained by systematically selecting from the remaining days not selected for the traffic partition survey (which was being conducted concurrently by the same crew). The Trout River Road location was sampled for eight days (three weekend days and five weekdays). A six-hour sampling block was chosen systematically from the eight-hour daily survey period.

Respondent vehicles were chosen on a floating basis. Vehicles found to contain park visitors were the only ones eligible for the complete questionnaire.

During the interview periods, hand counts were kept of all exiting vehicles. From July 20 to August 14, 24-hour automatic hourly traffic counts were also kept (unfortunately, the counters were not available for most of July. Also the late August counts were unusable due to a moisture problem with the counter).

Because of the traffic counter problems, the intended weighting scheme had to be modified. The automatic traffic counts available were assessed as to their representativeness of the July/August survey period. The survey population was estimated independently from the hand counts and the automatic traffic counts. The population estimates obtained were almost identical, suggesting that the hourly automatic counts could be used to weight the data.

Weighting was done by hour and by weekend and weekday. Daytype weights were obtained by the formula:

$$\frac{(\text{Avg. Vehicles by Daytype,}) \; (\text{No. of July/August}) \; (\text{10:00 A.M. - 6:00 P.M.}) \; (\text{Weekdays or Weekend Days})}{\text{No. of Interview by Daytype}} = \frac{N}{n} = \text{Weekday or Weekend Weight}$$

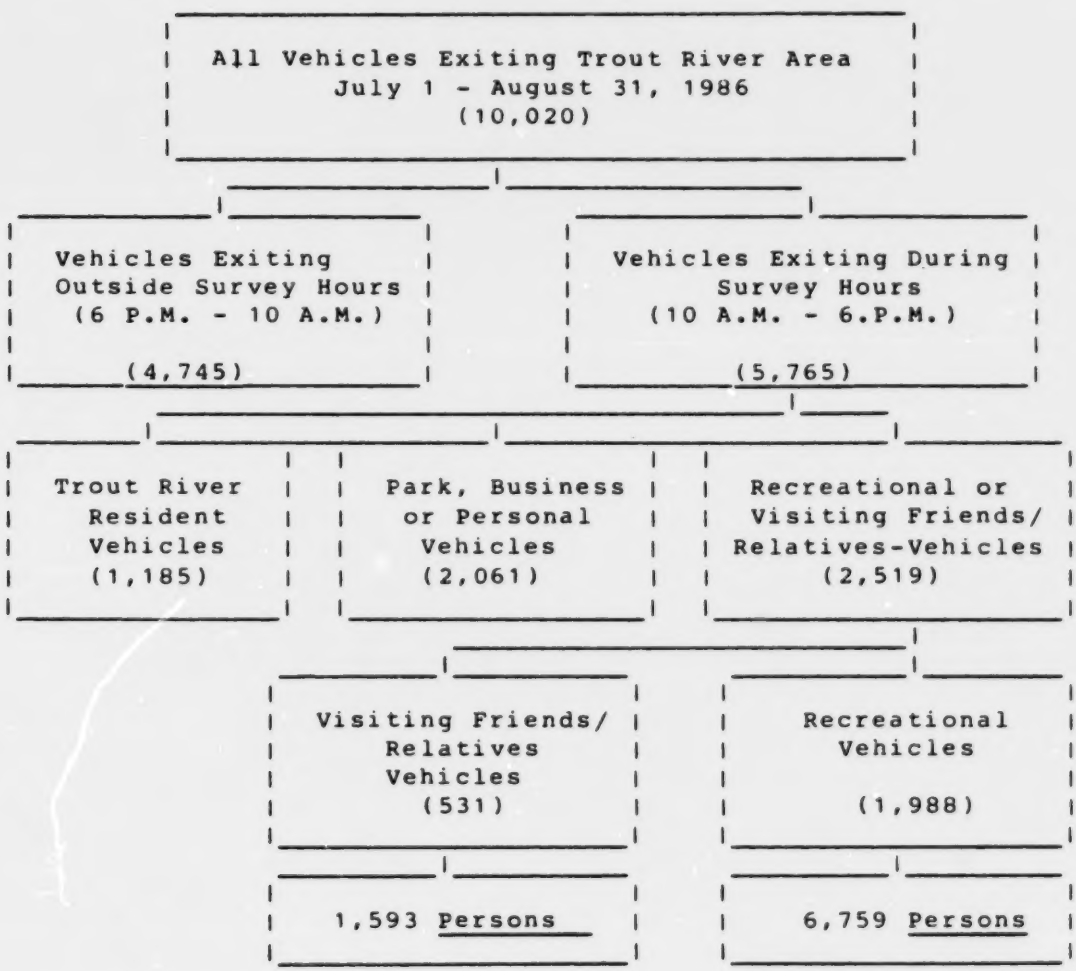
4.0 SAMPLING RATE, RESPONSE RATE AND POPULATION ESTIMATES

The sampling rate and number of interviews completed were equal to and above the pre-survey estimates of 80 percent and 362 respectively. The survey sampled 80 percent of vehicles exiting the Trout River area during the interview periods, or 463 vehicles.

As Figure 2 shows, of an estimated 5,765 exiting vehicles, 34.5 percent (1,988 vehicles) contained recreational visitors.

FIGURE 2

TROUT RIVER TRAFFIC PARTITION FLOW CHART



5.0 RESULTS

The results of the survey are briefly summarized below (more detailed analyses are available upon request).

5.1 All Users of The Trout River Road

5.1.1 Traffic Patterns

There was some variation in monthly traffic volumes, with July recording 60 percent and August 40 percent of the two-month total. Weekday and weekend traffic counts were very close at 92 and 94 vehicles per day respectively. Peak hour traffic occurred between 2:00 P.M. and 4:00 P.M. when 32 percent (16 percent in each hour) of the daily total exited the Trout River area.

5.1.2 Origin

As Table 1 shows, Trout River residents and other park enclave residents account for 21 and 25 percent respectively, of the total traffic.

TABLE 1

ORIGIN PATTERNS

PERMANENT RESIDENCE	PERCENT OF EXITING VEHICLES (N =5765)
Trout River	21.0
Other Park Enclaves	25.0
Census Div. 5 (Deer Lake-Cornerbrook area)	18.4
Other Newfoundland	13.1
Ontario	10.0
Other Canada	6.6
U.S. and Other Foreign	6.0
TOTAL	100%

5.1.3 Trip Purpose

If the respondent was found to be a Trout River resident, no further questions were asked. Otherwise, respondents were asked the purpose of their present trip on the Trout River Road (see Table 2).

TABLE 2

PURPOSE OF TRIP ON TROUT RIVER ROAD

TRIP PURPOSE	PERCENT OF TOTAL	
	Incl. Trout River Residents (N = 5765)	Excl. Trout River Residents (N = 4580)
Recreational	33.6	43.4
Visiting Friends/Relatives	9.0	11.7
Parks Employee on Business	2.5	3.2
Other Park-Related Business	3.9	5.1
Other Business or Personal Business	28.4	36.7
Trout River Resident	21.0	-
TOTAL	98.4%	100%

The group of most interest to us (i.e., those on recreational trips) account for 33.6 percent of total vehicular traffic or 43.4 percent of traffic, excluding residents of Trout River.

5.1.4 Transportation Mode

Detailed data on mode of transportation are required for market analysis and also for traffic monitoring purposes by the Engineering and Architecture Division (see Table 3).

TABLE 3

MODE OF TRANSPORTATION

TRANSPORTATION MODE	PERCENT OF TOTAL (N = 5765)
Passenger Vehicle	85.4
Travel Trailer	-
Tent Trailer	-
Truck or Van Camper	1.0
Motor Home	.3
Charter Bus	.7
Scheduled Bus	-
Park Vehicle	5.4
Single Axle Trucks Over Two Tons	.4
Tandem Truck	1.2
Fifth Wheel Semi-Trailer	-
Other Commercial Vehicle	3.2
Walk	.2
Other	1.4
TOTAL	100%

The sampling error in categories other than passenger vehicles is likely quite high because the population estimates are based upon such small numbers. For example, only four chartered buses were recorded in the sample. The weighted population estimate has a large margin of error (possible 25 percent). It is very unlikely that 40 chartered buses (i.e., .7 percent of 5,765) visited Trout River, considering that only 44 buses were recorded during the longer operating hours at the V.R.C. for the July/August period.

5.2 Recreational Trips and VFR'S

A number of trip-related questions ere asked of people on recreational trips and those visiting friends and relatives (i.e., VFR'S) in Trout River. These use types were asked about visitation to: the Community of Trout River and Trout River Pond; the Tablelands Exhibit; and the Green Gardens Trail.

An estimated 1,988 recreational trips and 531 VFR trips occurred during the survey period. At a party size of 3.4 and 3.0 persons respectively, this converts to 6,759 persons on recreational trips and 1,593 visiting friends and relatives.

These two user types are quite different in their origin and trip patterns, as the discussion below demonstrates.

Table 4 gives a breakdown by origin of persons who visited the community of Trout River.

Overall, 82 percent or 5,561 persons on recreational trips visited Trout River. Not unexpectedly, 100 percent of those visiting friends and relatives did so, since there are no other communities in the area.

TABLE 4

RECREATIONAL ORIGIN PATTERNS BY VISITATION TO COMMUNITY OF TROUT RIVER (PERSONS)

PERMANENT RESIDENCE	NO. OF PERSONS ON RECREATIONAL TRIPS VISITING TROUT RIVER COMMUNITY	PERCENT BY ORIGIN VISITING TROUT RIVER COMMUNITY (N = 6,759)
Other Enclave	228	66
Census Div. 5	1,701	95
Other Newfoundland	1,249	90
Ontario	1,108	88
Other Canada	758	78
U.S. & Other Foreign	517	70
TOTAL	5,561	82%

Considering the present lack of facilities at Trout River Pond, it attracts a substantial percentage of both recreational and VFR user types, as Table 5 shows.

TABLE 5

RECREATIONAL AND VFR ORIGIN PATTERNS BY VISITATION TO TROUT RIVER POND (PERSONS)

PERMANENT RESIDENCE	RECREATIONAL			VFR		
	PERCENT BY ORIGIN		NO. VISITING (EXCL. NOT SURE)	PERCENT BY ORIGIN		NO. VISITING
	YES	NOT SURE		YES	NOT SURE	
Other Enclave	49	-	136	62	-	91
Census Div. 5	59	-	1,232	69	-	438
Other Newfoundland	42	3	622	22	-	76
Ontario	26	4	349	58	-	237
Other Canada	41	4	381	-	-	-
U.S. and Other Foreign	27	8	171	100	-	42
TOTAL	43	-	2,891	56	-	884

Among recreational visitors, the Tablelands Exhibit has a fairly high attendance rate of 39 percent, tending to increase as distance from home increases. The VFR rate is lower at 12 percent (see Table 6).

TABLE 6

RECREATIONAL AND VFR ORIGIN PATTERNS BY USE OF TABLELANDS EXHIBIT (PERSONS)

PERMANENT RESIDENCE	RECREATIONAL		VFR	
	PERCENT BY ORIGIN	NO. VISITING	PERCENT BY ORIGIN	NO. VISITING
Other Enclave	8	28	-	-
Census Div. 5	17	319	5	34
Other Newfoundland	36	488	-	-
Ontario	56	726	33	133
Other Canada	45	452	100	21
U.S. and Other Foreign	85	644	-	-
TOTAL	39	2,657	12	188

As Table 7 shows, reported use of Green Gardens Trail is quite high among both recreational users and VFR's at 17 percent each. 1,114 recreational users and 264 VFR's used at least part of the trail. Most of this use is undoubtedly of the day use variety (only 44 parties or about 100 persons registered for overnight hikes from May - September, 1986).

TABLE 7

RECREATIONAL AND VFR ORIGIN PATTERNS BY USE OF GREEN GARDENS TRAIL (PERSONS)

PERMANENT RESIDENCE	RECREATIONAL		VFR	
	PERCENT BY ORIGIN	NO. OF HIKERS	PERCENT BY ORIGIN	NO. OF HIKERS
Other Enclave	8	28	-	-
Census Div. 5	7	135	10	61
Other Newfoundland	5	69	-	-
Ontario	25	322	50	203
Other Canada	20	204	-	-
U.S. and Other Foreign	51	384	-	-
TOTAL	17	1,114	17	264

6.0 CONCLUSION

The objective of this survey was to gather 'pre-development' base data on visitors to the Trout River area. The respondents of primary interest were those on recreational trips since this group is the greatest potential user of the park facilities planned for Trout River (including a boat tour). Those visiting friends and relatives in Trout River are also a potential but secondary source of visitors to the Trout River Pond Activity Area.

With about 1,988 vehicles on recreational trips on the Trout River Road and 531 vehicles visiting friends or relatives, (6,759 and

1,593 persons respectively) the market potential is still quite modest. Only four charter buses were recorded, a number too small to produce a reliable population estimate.

Use of the Trout River area and of park facilities as they become operational should be monitored closely for the next five years. The data collected in 1986 provide the base values necessary to monitor future trends.

GROS MORNE NATIONAL PARK
LOMOND DAY USER SURVEY
1986

TABLE OF CONTENTS

		Page
	LIST OF TABLES	i
	LIST OF FIGURES	ii
1.0	INTRODUCTION	1
2.0	SITE DESCRIPTION	1
3.0	RESEARCH OBJECTIVES	1
4.0	RESEARCH DESIGN	2
5.0	SURVEY RESPONSE RATES AND POPULATION ESTIMATES	4
	5.1 RESPONSE RATES	4
	5.2 POPULATION AND SAMPLE SIZE	4
6.0	DAY USER PROFILE	6
	6.1 NUMBER OF DAY USERS	6
	6.2 ATTENDANCE PATTERNS	6
	6.3 ORIGIN	7
	6.4 REPEAT VISITATION	7
	6.5 VEHICLES WITH BOATS	8
7.0	CONCLUSION	8

LIST OF TABLES

		Page
1.	TOTAL MONTHLY AND AVERAGE DAILY ATTENDANCE BY DAY TYPE	6
2.	ORIGIN PATTERNS	7
3.	ORIGIN BY REPEAT VISITATION	8

LIST OF FIGURES

Page

1. LOMOND TRAFFIC PARTITION FLOW CHART 5

1.0 INTRODUCTION

As a developing national park, Gros Morne requires a comprehensive on-going data collection system at its visitor use facilities, including day use areas. This information is important for producing visitor use forecasts and demand analyses, which in turn are essential socio-economic inputs to capital program development. Such data can also serve a number of operational purposes. This report summarizes some basic market identification research on Lomond day users conducted in July and August, 1986.

2.0 SITE DESCRIPTION

Lomond is located off Highway 431 on the East Arm of Bonne Bay. It is a fairly complex site with the following facilities: a temporary campground with approval being sought for upgrading to 30 semi-serviced sites by 1987; a paved day use parking lot of about 30 single and eight double spaces; two kitchen shelters and a picnic area; a playground; and a boat launch and wharf. The entrance kiosk is located up the road from these facilities, out of the line of sight.

3.0 RESEARCH OBJECTIVES

There were two research objectives:

(a) determine numbers and basic characteristics (e.g. origin, party size, vehicle type, boat use, same day re-entries and repeat use) of Lomond day users for input to present and future demand analyses of boat tour and day use facilities;

(b) determine use levels of entrance road for input to road paving project approval.

These objectives were to be met by automatic traffic counts, observation, and interviewing (of day users only) of in-coming vehicles by the kiosk attendant, on a sampling basis (unfortunately, as noted below, the traffic counts were too low to be credible due to technical problems).

4.0 RESEARCH DESIGN

The Lomond visitor counts were done using a temporary traffic counter. The counts were obtained hourly and segmented (see flow chart) by the observations kept by campground attendants. The attendants completed a record form on sampled days to determine the origin (at the provincial/state level) and mix of user types.

The survey population was all visitor and non-visitor vehicles entering the Lomond activity area between July 1, 1986 and August 31, 1986, during the hours of 11:00 to 19:00.

The sample was stratified into weeks and further stratified into weekend day (including one holiday Monday) and weekday. One weekend day was chosen systematically from each week of the survey period. One weekday was chosen randomly from each week.

All in-coming vehicles were stopped or recorded as necessary, by the campground attendant on duty at the kiosk except for certain periods when the attendant had duties elsewhere. By means of pre-determined codes, the attendant recorded: entry time; user type; vehicle type; day user party size; and day user origin by province/state. Day users were the only group who were asked any questions about their visit. (See Appendix A for the data collection sheet).

The automatic traffic counter was set to hourly counts. It was installed on the in-coming lane (northbound) of the Lomond access road in the paved portion near Highway 431.

Some modifications to the research design were required. The final sample includes eight weekend days and eight weekdays instead of ten of each. Two of the days dropped were in late June (outside the survey period) and two in late August and should not unduly affect the representativeness of the sample.

A more serious limitation on the survey results is the fact that the automatic traffic counter arrived a month late and was installed on July 28. Also, the counts obtained are simply too low to be accurate, due to an as yet undiagnosed problem.

Fortunately, a 96 percent sample (allowing for short recorded times away from the kiosk) of in-coming vehicles was taken during the 16 sample days. In the absence of vehicle counts, weekend and weekday weights were calculated for July and August on the basis of the N value (i.e., number of days) in each daytype strata divided by the number of sample days in each strata.[1] The sample was also weighted by hour to adjust for the four percent of the time in which kiosk attendants were not recording vehicles.

---

[1] eg. July weekend weight = 8 weekend days/4 sample days = 2.0.
July weekday weight = 23 weekdays/5 sample days = 4.6.
August weights were derived by this technique also.

5.0 SURVEY RESPONSE RATES AND POPULATION ESTIMATES

5.1 Response Rates

Response rates (affected by missed observation items or non-response by day users) were very high at over 99 percent.

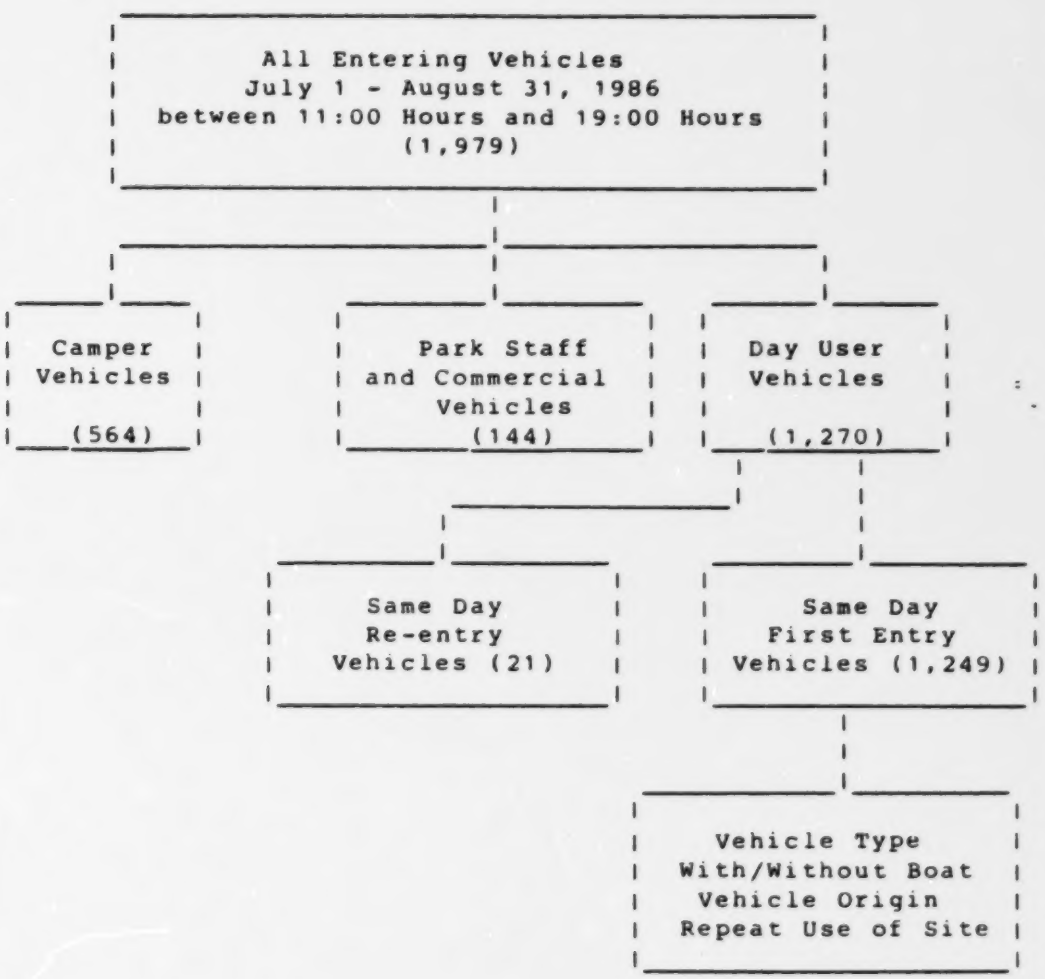
5.2 Population and Sample Size

The population (defined earlier) is estimated at 1,979 vehicle entries and is derived from a sample of 580 vehicles observed over 16 days.

Most vehicle entries (1,270 or 64 percent) were day users. A further 28.5 percent were vehicles staying at the campground. Staff accounted for 6.7 percent of entries and commercial for only .6 percent.

Only 1.7 percent of day user vehicles were re-entering the site during the same day. These vehicles were deleted from the day user population (except where total traffic volume is of interest) to avoid double-counting. Thus, the day user only population is calculated at 1,249 vehicles. (This does not necessarily represent all of the loading on the day use area since campers may also use it).

Figure 1: LOMOND TRAFFIC PARTITION FLOW CHART



6.0 DAY USER PROFILE

This section provides a brief summary of the day user data (more detailed analyses are available upon request).

6.1 Number of Day Users

During the months of July and August and between the hours of 11:00 a.m. and 7:00 p.m., Lomond received an estimated 1,249 unique day user vehicles. These vehicles carried an average of 3.2 persons. Thus, the site was visited by 4,000 day users.

6.2 Attendance Patterns

As Table 1 shows, attendance was quite evenly split between July and August, although July weekends had a higher daily average (42 vehicles) than August weekends (35 vehicles). The weekday averages for July and August were identical at 12 vehicles per day.

TABLE 1: TOTAL MONTHLY AND AVERAGE DAILY ATTENDANCE BY DAY TYPE

No of Vehicles by Day Type

MONTH	Weekend		Weekday		TOTAL NO. OF VEHICLES
	TOTAL	AVERAGE DAILY	TOTAL	AVERAGE DAILY	
JULY	336	42	283	12	619
AUGUST	386	35	244	12	630
TOTALS	722	38	527	12	1,249

The hourly entry patterns of day users show a steady build-up to the peak hour, which is 3:00 p.m. to 4:00 p.m. This hour receives 22 percent of the daily total while 51 percent arrive between 1:00 p.m. and 4:00 p.m.

6.3 Origin

As Table 2 indicates, the great majority of day users are from Newfoundland (including Labrador).

TABLE 2: ORIGIN PATTERNS

ORIGIN	PERCENT OF TOTAL VEHICLES (N = 1,249)
Newfoundland	75.8
U.S.	6.7
Maritimes	6.4
Ontario	6.0
Alberta	2.3
Other Canada	2.8
TOTAL	100 %

6.4 Repeat Visitation

Day users were asked whether this was their first visit to Lomond (i.e. the first visit ever). The majority, 62 percent, were repeat visitors. Table 3 shows the percentage of first time and repeat visitors by main origin groups (i.e. Nfld/Lab. and out of province).

TABLE 3

ORIGIN BY REPEAT VISITATION

ORIGIN	PERCENT BY ORIGIN (N=1,249 Vehicles) First Visit	Repeat Visit
Newfoundland	24.7	75.3
Out of Province	79.9	20.1
TOTAL	38	62

6.5 Vehicles With Boats

Only 1.7 percent of day user vehicles brought a boat to Lomond.

7.0 CONCLUSION

This survey is the first step of what (after next year's major visitor survey of various facilities) is scheduled to be a bi-annual monitoring program. While some technical problems were encountered with the automatic traffic counter, these problems will be resolved before next year's more comprehensive survey of Lomond day users. Meanwhile the data collected this year can still yield some useful insights.

For example, the survey results indicate that:

(1) Of the total estimated vehicle entries (1,979) 64 percent of 1,270 are day user vehicles;

(2) Deleting same day repeat entries, Lomond received 1,249 day user vehicles, or about 4,000 persons during the survey period;

(3) July weekends received the highest use at an average of 42 vehicles daily. Depending upon length of stay (to be established next year) the 38-space parking lot probably accommodated all vehicles even on the peak day, August 3, which recorded 74 day user vehicles;

(4) The eight double parking spaces are more than sufficient to accommodate the very small percentage of over-sized vehicles (only .5 percent had motorhomes);

(5) Most day users, 76 percent, are residents of Newfoundland;

(6) 75 percent of Newfoundlanders have visited Lomond previously while 20 percent of out-of-province visitors have done so;

(7) Considering that only 1.7 percent of day user vehicles brought boats, they are obviously not yet making much use of the new boat launch. Use of the boat launch by day users (and campers) should be monitored in future;

(8) The question of whether or not bringing a boat makes a difference in a day user's potential use of a boat tour on Bonne Bay cannot be answered definitively until next year's more in-depth survey. However, it must be recognized that with 4,000 day users in total and repeat use high at 62 percent, the potential is quite limited at present (although it must also be noted that campers are a potential source and, perhaps more importantly, Lomond would probably only be a stop on an existing tour);

(9) While the failure of the automatic traffic counter prevents us from fully realizing the second survey objective, (i.e. to measure total traffic volumes) we do have good hourly estimates of vehicle entries for the survey hours.

GROS MORNE NATIONAL PARK CAMPGROUND
HANDBACK SURVEY 1986

TABLE OF CONTENTS

		Page
	LIST OF TABLES	i
1.0	INTRODUCTION	1
2.0	RESEARCH OBJECTIVES	3
3.0	RESEARCH DESIGN	4
4.0	POPULATION ESTIMATES AND RESPONSE RATES	5
	4.1 Population Estimates	5
	4.2 Response Rates	5
5.0	RESULTS	7
	5.1 Visitor Profiles	7
	5.2 Reasons for Choosing Campground	10
	5.3 Activity Patterns	11
	5.4 Trail Use	12
	5.5 Site/Facility Use	13
	5.6 Overall Satisfaction & Facility Satisfaction	14
6.0	CONCLUSION	16

LIST OF TABLES/FIGURES

		Page
1.	RESPONSE DATA BY CAMPGROUND	5
2.	ORIGIN PATTERNS	7
3.	PARTY COMPOSITION	8
4.	TYPE OF CAMPING UNITS	9
5.	REASONS FOR CHOOSING CAMPGROUND	10
6.	ACTIVITY PATTERNS	12
7.	TRAIL USE	13
8.	SITE/FACILITY USE	14
9.	OVERALL SATISFACTION WITH STAY AT CAMPGROUND	15
10.	OVERALL SATISFACTION WITH CAMPGROUND ACTIVITIES	15

MAP 1: GROS MORNE NATIONAL PARK ACTIVITY AREAS 2

1.0 INTRODUCTION

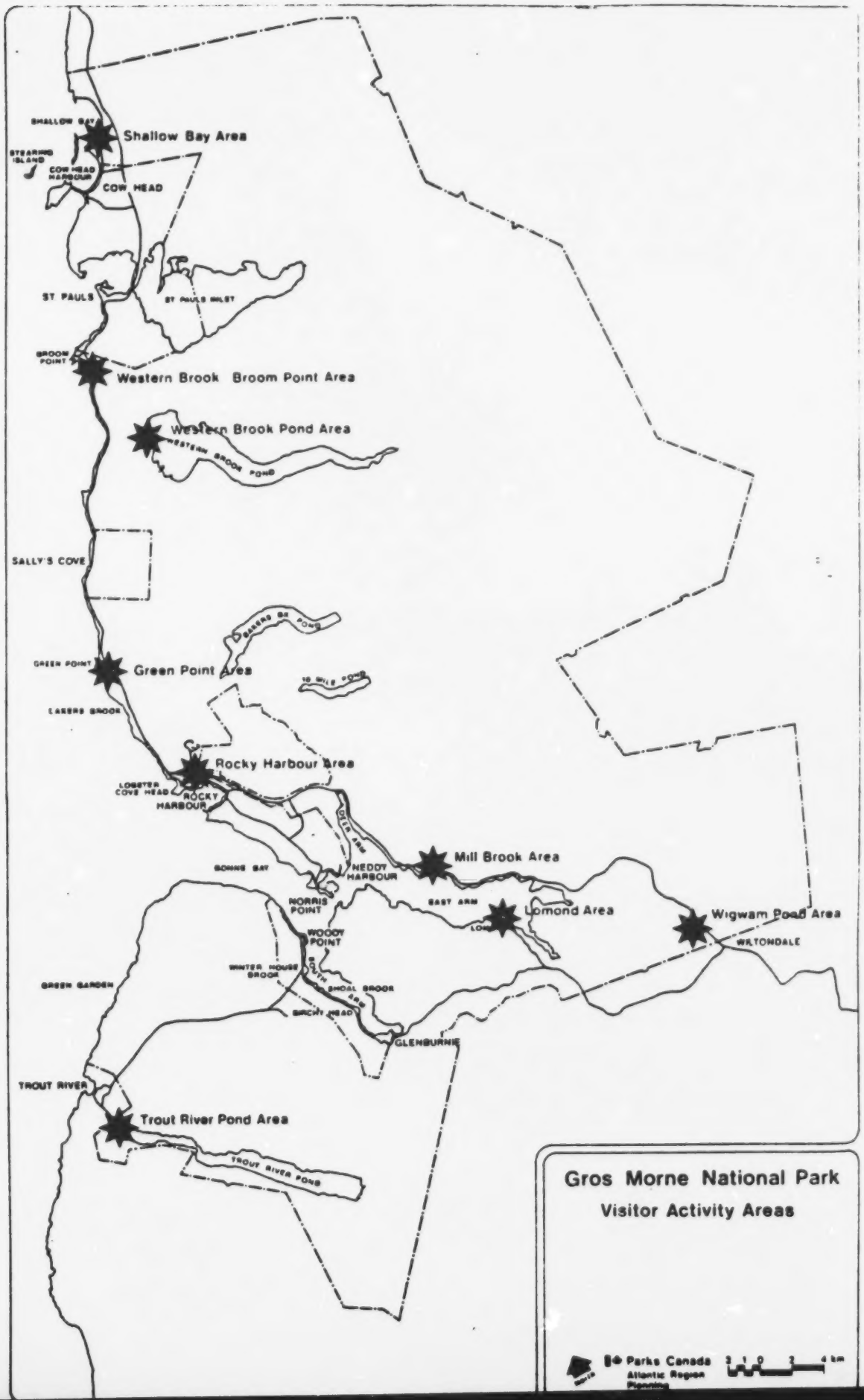
This report summarizes the results of a handback survey conducted at three Gros Morne campgrounds.

Although the survey was originally intended as a pilot test (of a more comprehensive survey planned for 1987), it was implemented in mid-July and should be representative of peak-season visitors.

The three campgrounds, all with manned kiosks, consist of:

(1) Berry Hill - 150 sites, semi-serviced;
(2) Shallow Bay - 25 sites, unserviced;
(3) Lomond - 31 sites, unserviced.

These campgrounds are a considerable distance from each other and also offer very different camping experiences (see Map).


Shallow Bay Area
SHALLOW BAY
BEARING ISLAND
COW HEAD HARBOUR
COW HEAD
ST PAULS
ST PAULS INLET
BROOM POINT
Western Brook Broom Point Area
Western Brook Pond Area
WESTERN BROOK POND
SALLY'S COVE
GREEN POINT
Green Point Area
LOBSTER COVE HEAD
ROCKY HARBOUR
Rocky Harbour Area
Mill Brook Area
NEDDY HARBOUR
BONNE BAY
NORRIS POINT
EAST ARM
Lomond Area
Wigwam Pond Area
WILTONDALE
WOODY POINT
WINTER HOUSE BROOK
GREEN GARDEN
SHOAL BROOK
BIRCH HEAD
GLENBURNIE
TROUT RIVER
Trout River Pond Area
TROUT RIVER POND
Gros Morne National Park
Visitor Activity Areas
Parks Canada
Atlantic Region
Planning
3 1 0 3 4 km

2.0 RESEARCH OBJECTIVES

The objectives of this survey were to:

(1) augment the campground registration data base now operational at the park;

(2) augment the APS Data Base on user characteristics and patterns of use of campground facilities;

(3) test and implement a "piggyback" survey system utilizing existing park resources and a self-completing handback questionnaire to replace the present practice of personal interviews; and

(4) develop a data base to allow short term projections of camping trends in Gros Morne.

The data items collected through the campground registration (i.e., permit) system and the handback questionnaire may be found in Appendix A.

3.0 RESEARCH DESIGN

The survey population was defined as all camper parties staying in Berry Hill, Lomond and Shallow Bay campgrounds during the months of July and August. The survey start-up dates were July 17, 19 and 18 respectively. The finish dates were September 6, August 27 and September 1, respectively.

The sampling frame consisted of camper parties registering for a stay in the above campgrounds except those camper parties re-registering during the same stay within the campground.

Because of their small size, all registering parties at Shallow Bay and Lomond were to be given a questionnaire. In the case of Berry Hill, a 50 percent sample was sufficient, with every second party receiving a questionnaire.

The campground registration data kept throughout the survey period provided the population parameters necessary to derive weight values.

The data were also weighted by the variables "first stay/repeat stay" and origin to adjust for possible response biases due to these factors.

4.0 POPULATION ESTIMATES AND RESPONSE RATES

4.1 Population Estimates

(1) Berry Hill - 2,230 Parties
(2) Shallow Bay - 347 Parties
(3) Lomond - 335 Parties

These figures represent unique party-stays (not party-nights) and are calculated by dividing total registered party-nights during the survey period by the average length of stay.[1]

4.2 Response Rates

Table 1 provides response data for each campground.

TABLE 1

RESPONSE DATA BY CAMPGROUND

Campground	No. Eligible To Receive Questionnaire	No. Receiving Questionnaire	No. of Completed Questionnaire	Response Rate %
Berry Hill	1,115	974	388	39.8
Shallow Bay	347	288	113	39.2
Lomond	335	289	75	26.0

The response rates are based on the number of completed questionnaires divided by the number receiving a questionnaire. The response rates are fairly typical for this type of handback survey.

---

[1] Estimated party stays for the full two months of July and August are: 3,026 at Berry Hill; 628 at Shallow Bay; and 568 at Lomond.

It should be noted that possible response biases introduced by the relatively low response rates are at least partly adjusted for by the weighting system. This system adjusts for any biases caused by the two variables origin and repeat stay, which are the two most likely to account for differences in park use patterns, etc. For example, repeat users are not likely to complete a second questionnaire. In turn, repeat users are more likely to live in fairly close proximity to the park.

5.0 RESULTS

In most respects, Berry Hill campers exhibit quite different characteristics and behavioral patterns than Shallow Bay and Lomond campers.

It should be noted that the N values referred to below are parties not persons. The questions were phrased to elicit information on the party (eg., if one or more members of the party engaged in a certain activity, the party is reported as doing so).

5.1 Visitor Profiles

Profile data include: origin patterns; party composition; repeat stays; average length of stay; average party size; and type of camping unit.

Table 2 shows the origin pattern for each campground.

TABLE 2

ORIGIN PATTERNS

ORIGIN	PERCENT BY CAMPGROUND (PARTIES)		
	Berry Hill (N = 2264)	Shallow Bay (N = 347)	Lomond (N = 335)
Eastern Newfoundland	15	12	14
Western Newfoundland	14	24	24
Central Newfoundland	4	4	-
Northern Peninsula	3	24	8
Other Newfoundland	1	-	-
Other Canada	36	23	34
U.S.A. and Other Foreign	28	13	21
TOTAL	100%	100%	100%

Except for Shallow Bay, non-Newfoundlanders constitute a majority of camper parties. Overall, 60 percent of camper parties are non-Newfoundlanders. Berry Hill and Lomond have a strong component from the U.S. and other foreign countries (other foreign is less than two percent), with 28 percent and 21 percent respectively.

As Table 3 shows, the party composition breakdown is similar for Berry Hill and Lomond. The main difference between Shallow Bay and the other two campgrounds is the higher percentage of one family units with children (34 percent compared to 24 and 23 percent) and the lower percentage of one couple parties (35 percent compared to 51 and 49 percent).

TABLE 3

PARTY COMPOSITION

PARTY COMPOSITION	PERCENT BY CAMPGROUND		
	Berry Hill (N = 2264)	Shallow Bay (N = 347)	Lomond (N = 335)
One Person	5	3	4
One Couple	51	35	49
One Family With Children	24	34	23
Two Families With Children	3	4	7
Two Couples	8	8	10
Organized Group	2	3	1
Group of Friends	5	8	7
Other	2	5	-
TOTAL	100%	100%	100%

At Berry Hill, 75 percent of the parties reported being on their first visit to Gros Morne. The corresponding figures for Shallow Bay and Lomond are 53 percent and 61 percent. When asked whether it was their first stay at the particular campground, 69 percent of Berry Hill parties said 'yes', compared to 56 percent of Shallow Bay parties and 78 percent of Lomond parties.

Average length of stay was highest at Berry Hill (two nights). Both Shallow Bay and Lomond averaged 1.3 nights.

Average party size was 2.7 persons at Berry Hill; 3.0 at Shallow Bay; and 2.9 persons at Lomond.

Table 4 shows the type of camping unit used.

TABLE 4

TYPE OF CAMPING UNIT

CAMPING PARTY	PERCENT BY CAMPGROUND		
	Berry Hill (N = 2264)	Shallow Bay (N = 347)	Lomond (N = 335)
Travel Trailer	7	10	4
5th Wheel Trailer	1	1	1
Fold-Down Trailer	13	18	7
Truck Camper	9	14	14
Motor Home	9	4	23
Van Camper	10	10	9
Tent	49	38	42
Other	2	3	-
TOTAL	100%	100%	100%

Lomond has a higher percentage of motor homes and lower percentage of fold-down trailers than the other campgrounds: otherwise, the patterns are fairly similar.

5.2 Reasons for Choosing Campground

In question 3, respondents were asked to check as many reasons as applied for staying at the particular campground.

TABLE 5

REASONS FOR CHOOSING CAMPGROUND

REASON	PERCENT BY CAMPGROUND (PARTIES) Berry Hill (N = 2264)	Shallow Bay (N = 347)	Lomond (N = 335)
1. Been here before and liked it	19	27	11
2. Like Facilities	47	10	16
3. Close to other sites/ facilities	23	6	10
4. Near Ocean	17	52	32
5. Recommended by other visitors	22	13	17
6. First campground we came to	8	6	11
7. Other campgrounds full or too crowded	.4	-	-
8. Close to home	2	14	2
9. Convenient Stop-Over	22	29	25
10. Liked Location	35	38	27
11. Campground Size	9	12	11
12. Park Literature	35	13	18
13. Recommended by Park Staff	8	4	11

The most common reason for choosing Berry Hill was a liking for the facilities. For Shallow Bay and Lomond, it was being near the ocean. Overall, camper parties choose campgrounds for a variety of reasons. Virtually no parties chose their campground because their first preference was full or too crowded.

5.3 Activity Patterns

As Table 6 indicates, hiking and sightseeing are the most popular activities at all three campgrounds; however, Berry Hill shows a much higher participation rate than the other two campgrounds. Swimming is popular at Shallow Bay (38 percent).

Participation in interpretive programs is substantially higher at Berry Hill (25 percent) than the other two campgrounds (three percent). This is likely due to a number of factors (e.g. availability, longer length of stay at Berry Hill and higher percentage of first-time visitors to the park).

TABLE 6

ACTIVITY PATTERNS

ACTIVITY	PERCENT PARTICIPATING BY CAMPGROUND (PARTIES)		
	Berry Hill (N = 2264)	Shallow Bay (N = 347)	Lomond (N = 335)
1. Bicycling	3	8	3
2. Swimming	10	38	5
3. Boating	11	3	12
4. Backpacking	8	4	4
5. Fishing	10	4	16
6. Birdwatching	17	10	10
7. Hiking	73	42	49
8. Interpretive Program	25	3	3
9. Picnicking	30	23	28
10. Sightseeing	70	46	54

5.4 Trail Use

The differences in trail use patterns between the three campgrounds show up clearly in Table 7. The differences between Shallow Bay and Lomond are minor and can be explained primarily by proximity (e.g. Lomond is closer to Green Gardens and Stanleyville and thus, has a higher percentage hiking these trails). Berry Hill campers, on the other hand, report much higher use of most trails.

TABLE 7

TRAIL USE

TRAIL	PERCENT HIKING BY CAMPGROUND (PARTIES)		
	Berry Hill (N = 2264)	Shallow Bay (N = 347)	Lomond (N = 335)
1. Berry Hill	33	7	3
2. Green Gardens	8	-	11
3. Berry Hill Pond	39	3	1
4. James Callaghan	18	3	2
5. Baker's Brook Pond	22	6	-
6. Western Brook Pond	38	15	18
7. Stanleyville	1	2	17

5.5 Site/Facility Use

Table 8 shows the site/facility use pattern. As with trail use, Berry Hill campers are considerably more active than the other campers.

TABLE 8

SITE/FACILITY USE

SITE/FACILITY	PERCENT BY CAMPGROUND (PARTIES) Berry Hill (N = 2264)	Shallow Bay (N = 347)	Lomond (N = 335)
1. Visitor Reception Centre	66	21	26
2. Lobster Cove Head Lighthouse	54	16	22
3. Western Brook Pond	42	16	18
4. Western Brook Pond Boat Tour	35	21	14
5. Trout River Pond	7	5	16
6. Shallow Bay Day Use Area	19	34	11

5.6 Overall Satisfaction and Facility Satisfaction

Tables 9 and 10 present the results of campers' ratings of their camping experience and of campground facilities.

TABLE 9

OVERALL SATISFACTION WITH STAY AT CAMPGROUND

SATISFACTION RATING	PERCENT BY CAMPGROUND (PARTIES)		
	Berry Hill (N = 2264)	Shallow Bay (N = 347)	Lomond (N = 335)
1. Very satisfied	56	34	30
2. Satisfied	39	56	55
3. Dissatisfied	3	6	9
4. Very dissatisfied	1	3	3
5. No opinion	2	1	3
TOTAL	100%	100%	100%

Overall satisfaction was high at all three campgrounds with 85-95 percent reporting that they were either satisfied or very satisfied with their stay. Berry Hill campers were most satisfied and Lomond campers least satisfied.

TABLE 10

OVERALL SATISFACTION WITH CAMPGROUND FACILITIES

SATISFACTION RATING	PERCENT BY CAMPGROUND (PARTIES)		
	Berry Hill (N = 2264)	Shallow Bay (N = 347)	Lomond (N = 335)
1. Very satisfied	41	18	21
2. Satisfied	50	56	58
3. Dissatisfied	7	18	14
4. Very dissatisfied	1	7	5
5. No opinion	1	1	3
TOTAL	100%	100%	100%

Campground facilities were rated lower than the overall experience although satisfaction ratings were still high at 91, 74 and 79 percent respectively, for Berry Hill, Shallow Bay and Lomond.

When asked if the facilities could be improved in any way, 74 percent of Berry Hill campers said 'yes', compared to 84 percent of Shallow Bay campers and 87 percent of Lomond campers. The most commonly suggested improvements relate to: electrical and water hookups; elimination of firewood fee; more and better shower facilities; and more recreational facilities.

Being turned away from a campground because it was full is not a significant cause of dissatisfaction: this only happened to .6 percent of Shallow Bay campers and none at Berry Hill or Lomond campgrounds.

6.0 CONCLUSION

The survey has successfully met its objectives. It has proven to be a cost-effective method of gathering a large volume of survey data.

Some revisions to the questionnaire and data collection techniques are planned for the 1987 survey. However, these will be kept to a minimum to ensure comparability of results between the two years.

REPORT ON TRAIL USE 1986

Data Collection by Shawn Knott and Todd Paddle

Report prepared by Karole Pittman

October 1986

Introduction

Trail counters were installed on three park trails. Counts were collected daily until the middle of August and monthly following that.

	Start Date	Date of last daily count
Western Brook Pond Trail	June 20 *	August 17
Bakers Brook Falls Trail	June 20	August 17
Stanleyville Trail	July 25	August 26

* Note: Due to equipment malfunctions July 10 - 14, the Western Brook counter was not operational.

The statistics were gathered and graphed by two summer students.

Trail Use

Total Use

Visitor use data were collected on three trails during the months of June to August 1986. The most heavily used was Western Brook Pond trail, with a total of 6,446 people recorded over a period of 54 days. Two thousand and sixty-nine people used the Bakers Brook Falls trail over a period of 59 days. Only 256 people used the Stanleyville trail, over a 33 day period.

The daily average number of trail users reflects this trend:

Western Brook Pond	119.4 people/day
Bakers Brook Falls	35.1 people/day
Stanleyville	7.8 people/day

Western Brook Pond is a popular trail, mentioned in promotional literature and recommended by past park users. It is a pleasant trail, both in variety and length and suitable for hikers of moderate ability including children and older people. The boat tour and fjord pond are major attractions. In addition, back packers must use this trail to gain access to the Stag Brook primitive campsite and the Long Range route.

In contrast, Bakers Brook Falls is a new trail without such major attractions (or even a sign identifying it). The fact that it is so popular must be due partly to its location in Berry Hill Campground, and information given out by Park sources.

The low usage of the Stanleyville trail is related to the low use of Lomond Campground and its distance from major visitor staging areas. It may also be an indirect result of the loss of the Bonne Bay ferry. With the ferry gone, visitor mobility may have decreased and lead to a corresponding decrease in visits to the south side of the Park. Camper party-days at Lomond amounted to

just 12% of total park campground use this year. Therefore only a small proportion of the Park visitors are potential users of the Stanleyville Trail.

Patterns of Use

Daily use of the three trails shows an irregular fluctuation, most pronounced on Western Brook Pond trail. Several factors were considered to find patterns of trail use. The histograms of number of hikers versus day of the week show that fewer than average hikers used the trails on weekends, with two exceptions: there was above average use on Sundays in July on the Western Brook Pond trail, and on Saturdays in August on the Stanleyville Trail. The boat tour and cancellations due to weather could be partly responsible for the wide fluctuations in the Western Brook Trail statistics, and may account for the high Sunday use.

Lomond campground has traditionally seen heavy use from the Deer Lake and Corner Brook area and possibly these people concentrate there on weekends. The numbers using the Stanleyville Trail are so low that any real trends would be difficult to assess.

I attempted to correlate weather statistics for July and August with use of Western Brook Pond and Bakers Brook Falls trails (See Figures 1 and 2). Data on these two trails were the more complete, and the number of users was higher during this period. Peaks in trail use and rainy days are marked on one calendar, while peaks and sunny days are marked on the other. There appears to be a rough correlation between hiking and weather. Peaks in trail use occur most often on Sunday or clearing days after a series of rainy and or cold overcast days. The fact that fluctuations are more pronounced on Western Brook Pond trail could be due to three factors: firstly, that good weather is required for running the boat tour; secondly that clear sky or high overcast conditions are necessary for viewing the cliffs at

Western Brook Pond, and thirdly that people tend to stay closer to home (i.e. the campgrounds or cabins and motels near Rocky Harbour or Cow Head) during bad weather.

Bad weather has a less extreme effect on people wanting to hike to Bakers Brook Falls. There are no great vistas on this trail to be obscured by low clouds or rain. The falls are at least as spectacular during rainy weather. Visitor Services attendants recommend saving this trail to hike during rainy weather, and using the clear weather to hike up Gros Morne and to Western Brook Pond.

It remains to correlate weather to weekday-weekend patterns of use. During both July and August, a higher percentage of weekends than weekdays was rainy (what you always suspected is true!).

Percent, rainy/cold days

	Weekdays (Mon-Fri)	Weekends (Sat-Sun)
July 1986	6/23 x 100 = 26.1%	3/8 = 37.5%
August 1986	6/21 = 28.6%	3/10 = 30.0%

These are very subjective conclusions. There may be a real trend to increased hiking during the week as compared to weekends. It does stand to reason however that weather will affect trail use, probably resulting in increased use on sunny days after periods of rain.

Conclusion

Western Brook Pond was very heavily used during the whole summer, and especially during the last two weeks of July. The Bakers Brook Falls trail was well travelled but received only 30% as much use as the Western Brook Pond trail. Stanleyville received a mere seven hikers for every hundred going to Western Brook Pond. Numbers of hikers varied from day to day and apparently from weekday to weekend. The weather and perhaps other factors may be responsible for this pattern of trail use.

Weather Statistics 1986

Figure 1

C = Cloudy, Overcast
R = Rain, Showers, Drizzle
S = Sunny

Date	Weather Code	m.m. Precip.	Temp. low/max.	Date	Weather Code	m.m. Precip.	Temp. low/max.
July 1	R	1.8	12.0	Aug. 1	C,R	3.0	
2	S,C	1.0		2	C		17.0
3	S			3	C	2.6	
4	R	15.4	12.5	4	R	4.0	
5	R	11.4	12.0	5	C,S		
6	R,S	1.		6	S		17.0
7	S			7	C,R	17.1	
8	R	68		8	R	11.7	
9	R,S			9	R	22.6	
10	C,S	1.4		10	R	19.6	
11	C,R	3.7	12.5	11	C,S	0.6	
12	C		12.5	12	R,S	1.6	
13	C			13	S		16.5
14	S			14	S		
15	C	12.0		15	S		
16	R,C	.3		16	S		
17	S			17	S		
18	S						
19	S						
20	S,C	2.0					
21	C	1.0					
22	C	1.2	13.0				
23	S	1.6					
24	S						
25	C	1.7					
26	C,S	1.0					
27	C,S	1.0					
28	S						
29	S,R	4.1					
30	C,S						
31	S	1.0					

TRAIL USE AND WEATHER

Figure 2

Above Average Trail Use, correlated with **rain** and **cold**

Day of Month:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Bakers Brook Falls:																															
July		2					7		9				13	14			17			20				24				27	28		30
Rain/Cold	1			4	5	6		8		10	11	12			15																
August		2			5	6		8																							
Rain	1		3	4			7	8	9	10		12																			
Western Brook Pond																															
July		2																													
Rain	1			4	5	6		8		10	11	12			15						21		23	24	25		27		29		31
August					5	6	7				11	12	13	14	15	16	17														
Rain	1		3	4			7	8	9	10		12																			

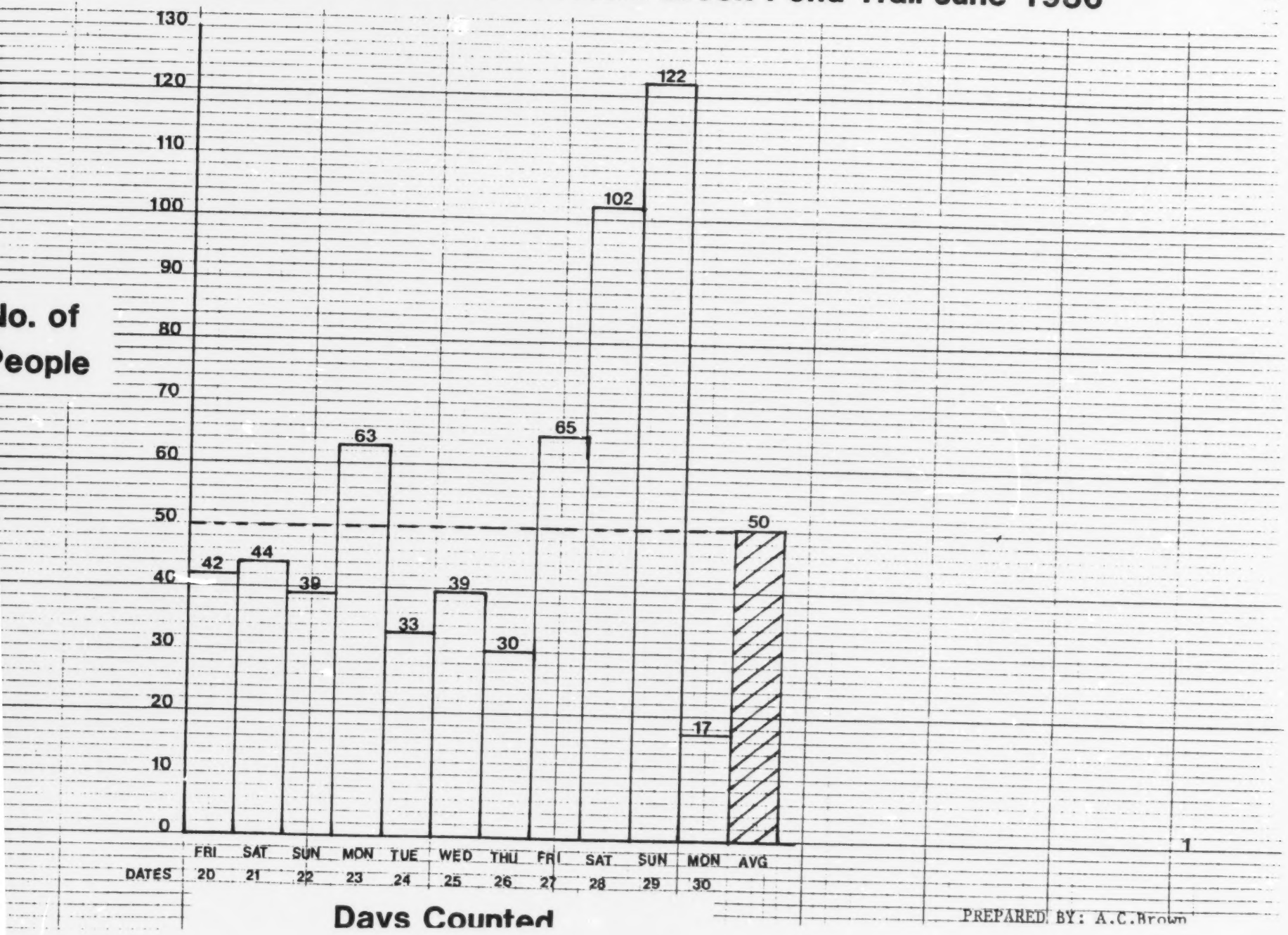
Above Average Trail Use, Correlated with **Sun**

Bakers Brook Falls																															
July		2					7		9				13	14			17			20				24				27			
Sun		2	3			6	7		9	10				14			17	18	19	20			23	24			26	27	28	29	30	31
August		2			5	6		8																							
Sun					5	6					11	12	13	14	15	16	17														
Western Brook Pond																															
July		2																													
Sun		2	3			6	7		9	10				14			17	18	19	20	21		23	24	25		27		29		31
August					5	6	7				11	12	13	14	15	16	17						23	24		26	27	28	29	30	31
Sun					5	6					11	12	13	14	15	16	17														

LIST OF GRAPHS

1. Daily Counts of hikers on W.B.P. Trail, June 1986.
2. Average # hikers on W.B.P. Trail by day of the week, June 1986.
3. Daily Counts of hikers on W.B.P. Trail, July 1986.
4. Average # hikers on W.B.P. Trail by day of the week, July 1986.
5. Daily Counts of # hikers on W.B.P. Trail, August 1986.
6. Average # hikers on W.B.P. Trail by day of the week, August 1986.
7. Daily Counts of hikers on B.B.F. Trail, June 1986.
8. Average # hikers on B.B.F. Trail by day of the week, June 1986.
9. Daily Count of hikers on B.B.F. Trail, July 1986.
10. Average # hikers on B.B.F. Trail by day of the week, July 1986.
11. Daily Count of hikers on B.B.F. Trail, August 1986.
12. Average # hikers on B.B.F. Trail by day of the week, August 1986.
13. Daily Count of hikers on Stanleyville Trail, July 1986.
14. Daily Count of hikers on Stanleyville Trail, August 1986.
15. Average # hikers on Stanleyville Trail by day of the week, August 1986.

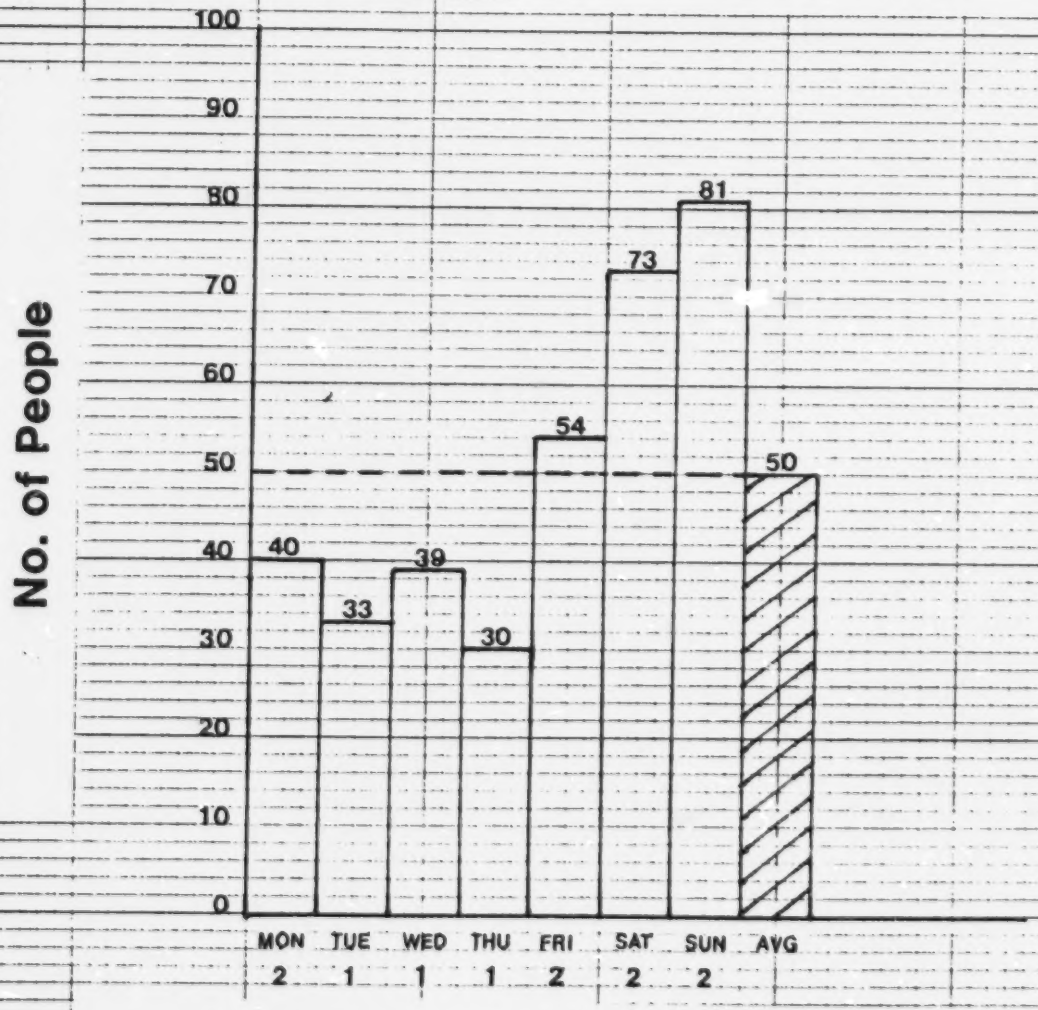
Daily Count of Hikers on Western Brook Pond Trail June 1986



PREPARED BY: A.C.Brown

Average Number of Hikers on Western Brook Pond Trail by the Day of the Week

June 1986



No. of Days Counted

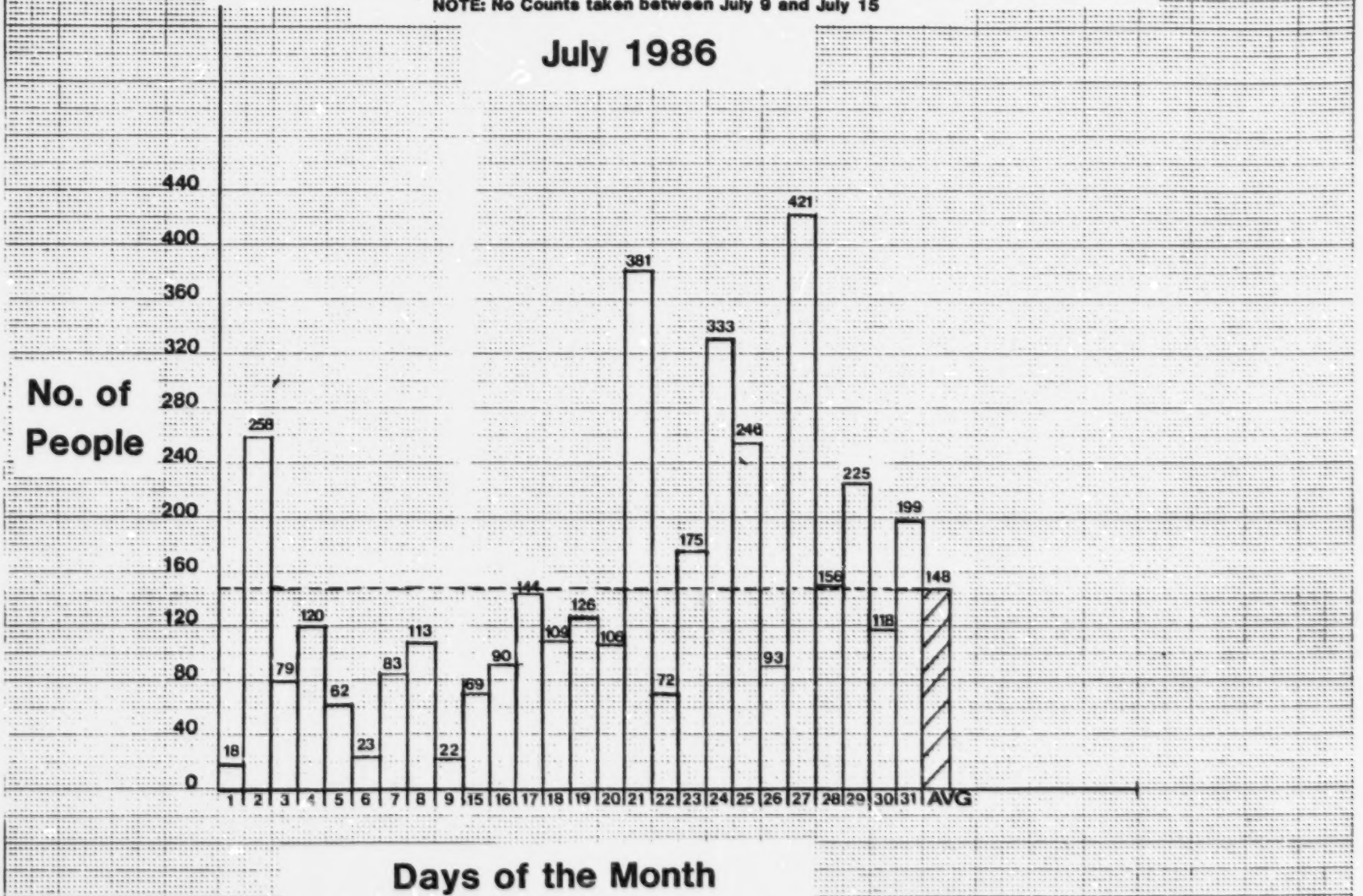
2

PREPARED BY: A.C.Brown

Number of Hikers on Western Brook Pond Trail

NOTE: No Counts taken between July 9 and July 15

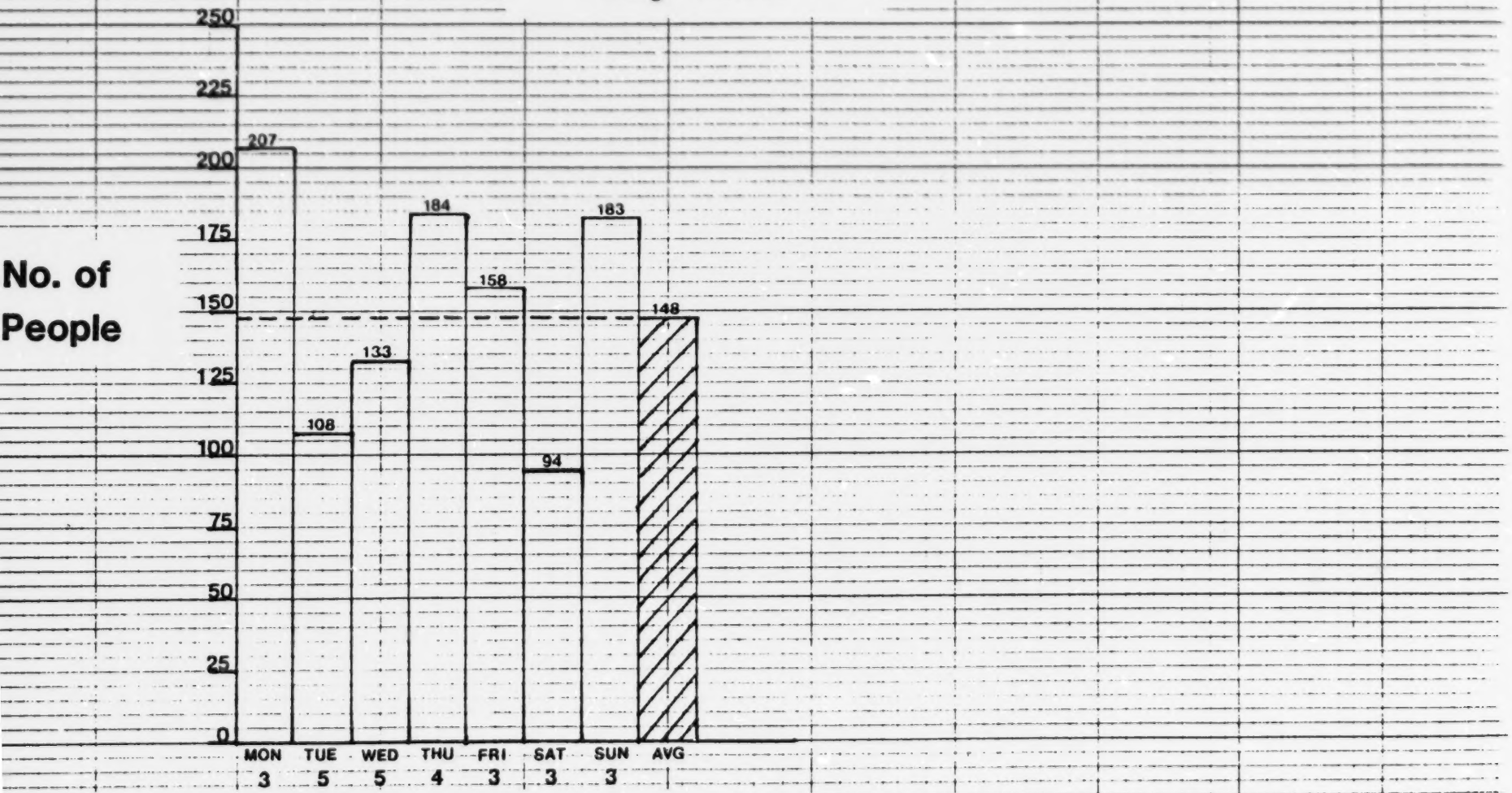
July 1986



PREPARED A. Brown

Average No. of Hikers on Western Brook Pond Trail by Day of the Week

July 1986

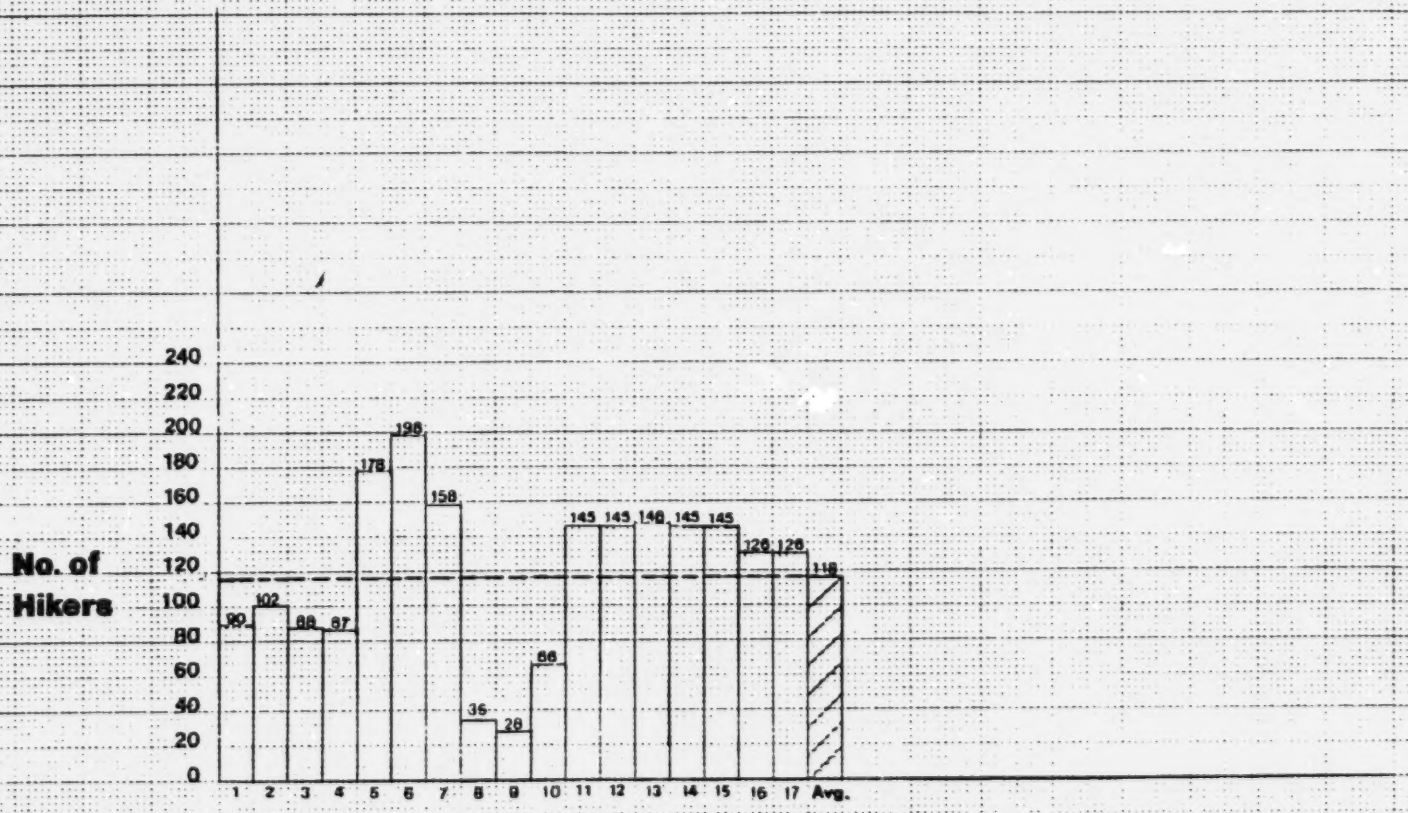


4

PREPARED BY: A.C.Brown

Daily Count of # Hikers on Western Brook Pond Trail, August *1986*

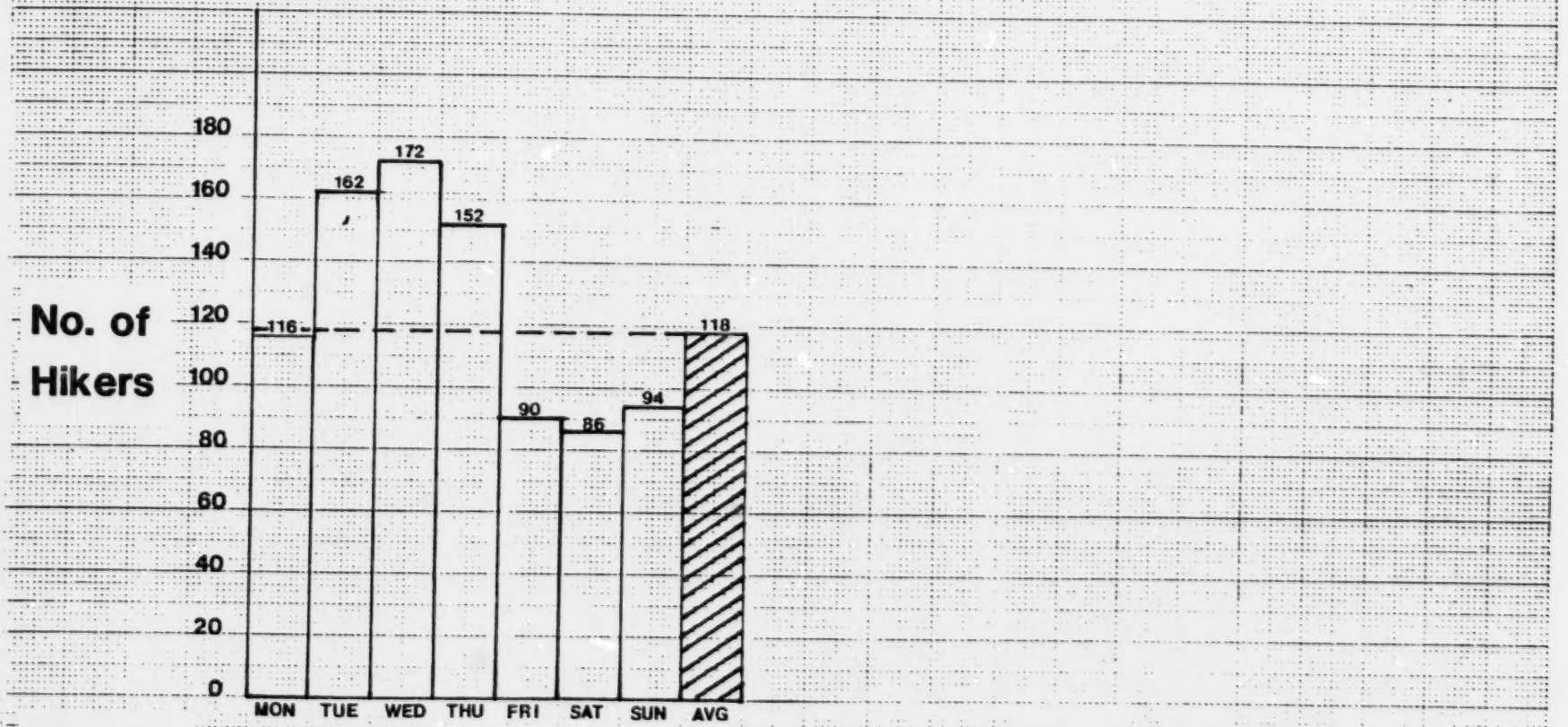
NOTE: Discontinued daily counts after August 17.



PREPARED BY: A.C.Brown

Average No. of Hikers on Western Brook Pond Trail by Day of the Week

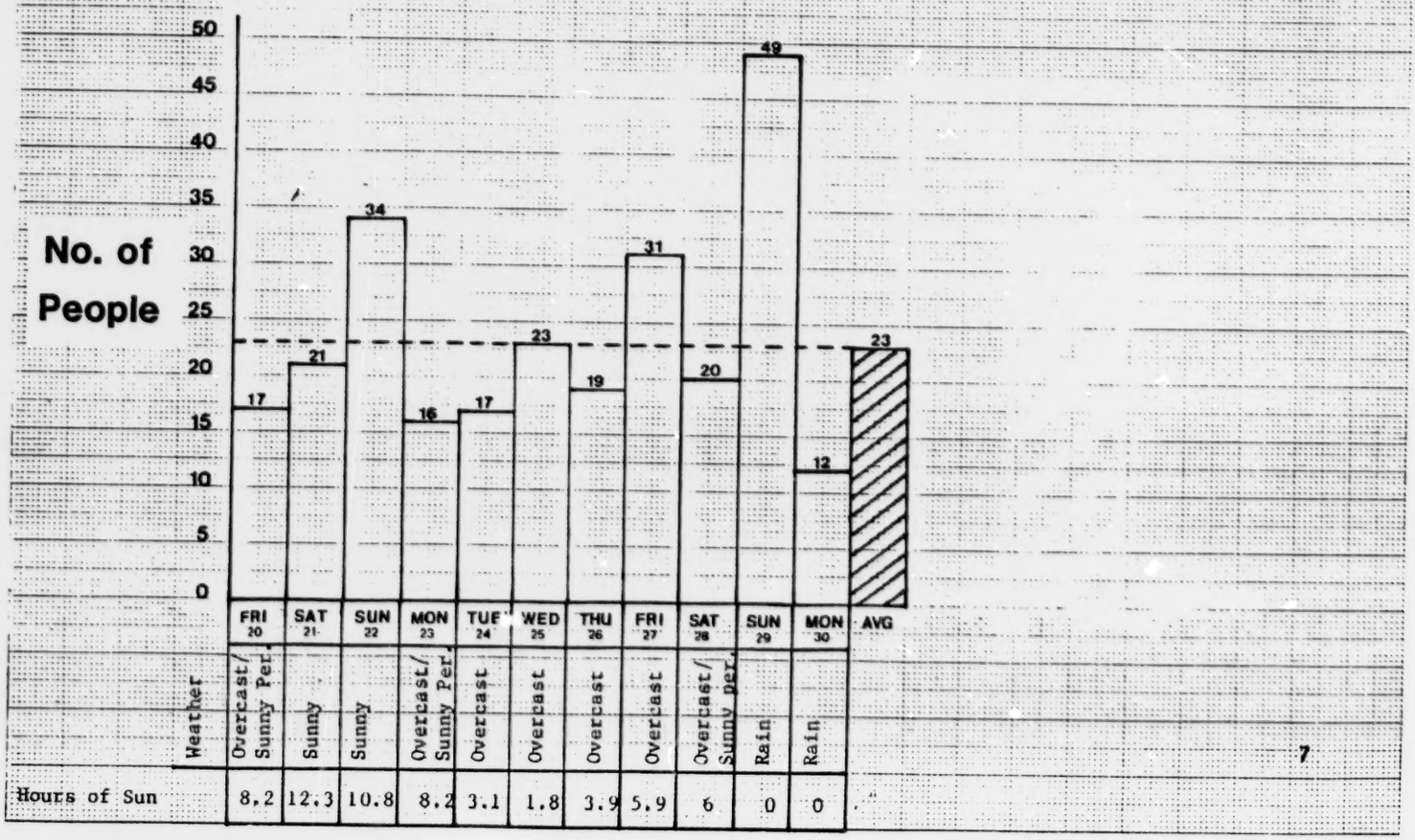
August 1986



PREPARED BY: A.C. BROWN

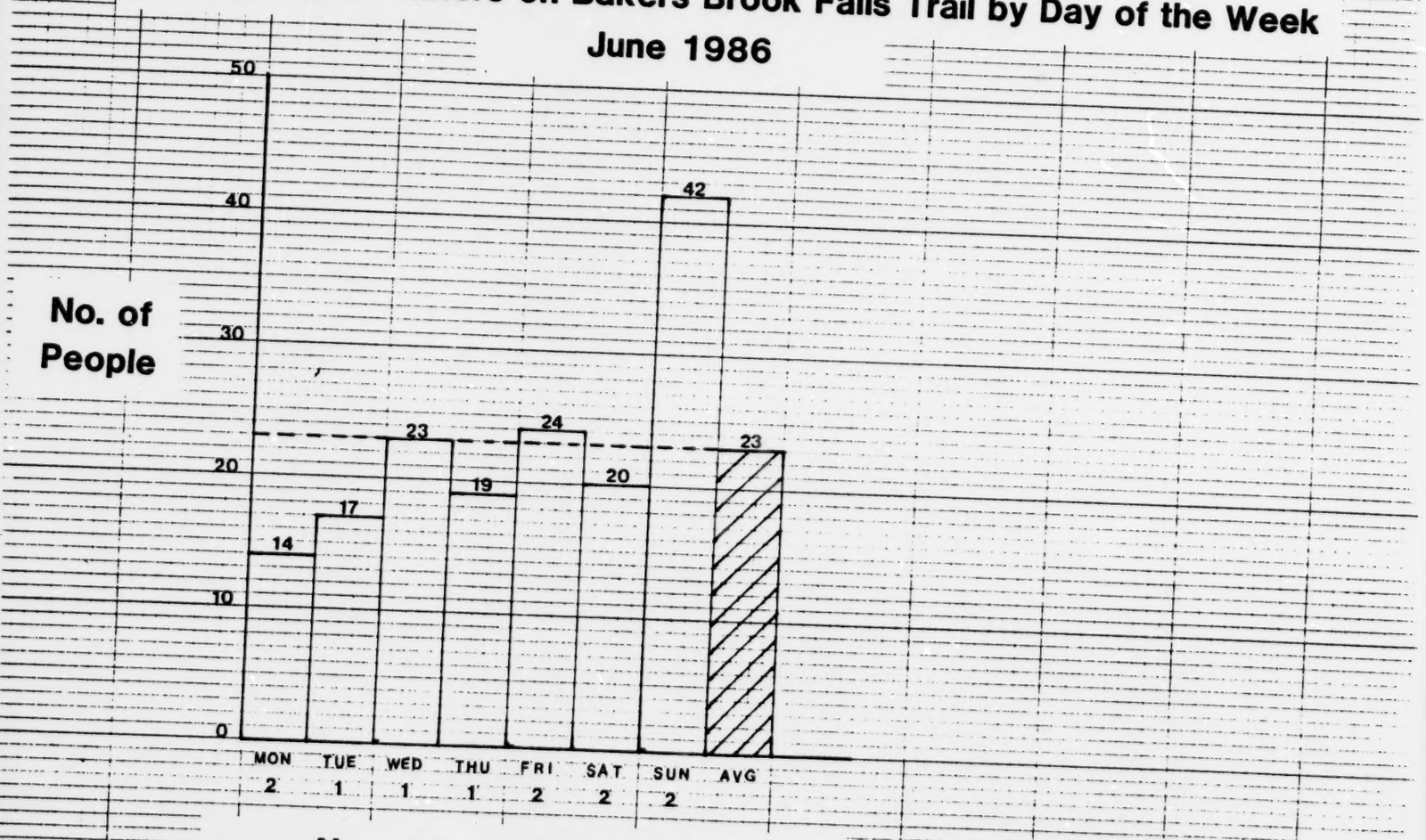
Daily Count of Hikers on Bakers Brook Falls Trail June 1986

NOTE: No counts taken prior to June 20

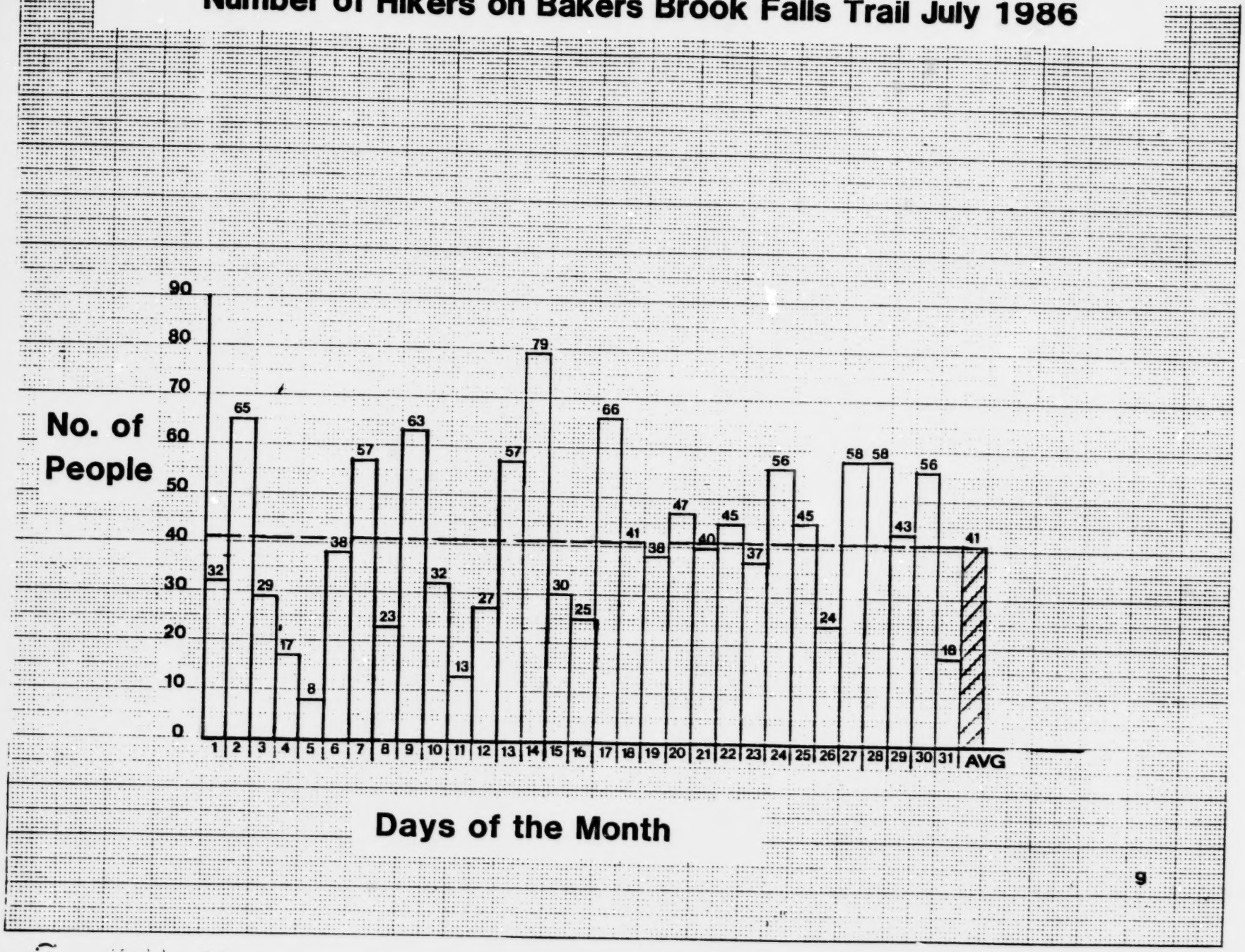


PREPARED BY: A. C.B[illegible]

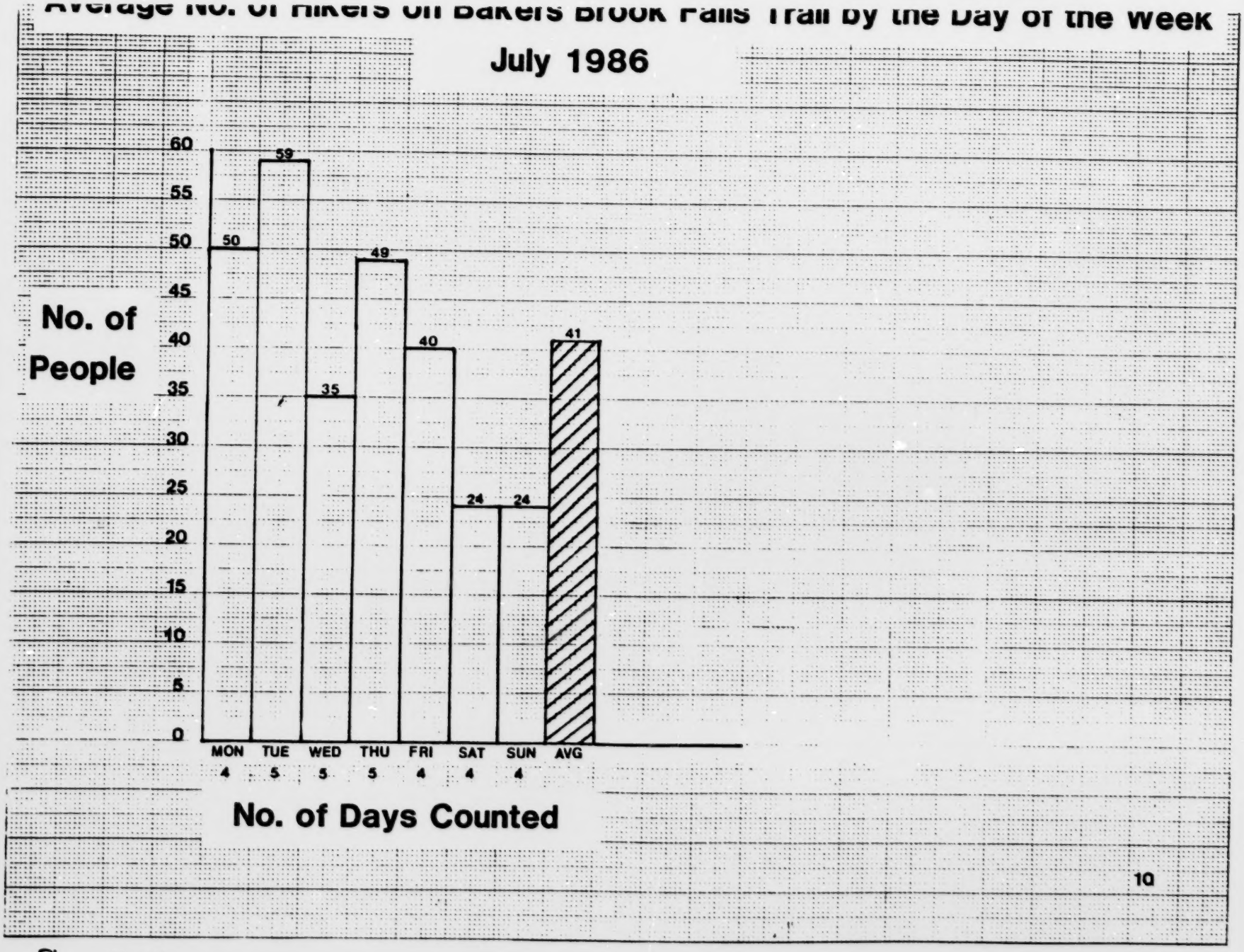
Average No. of Hikers on Bakers Brook Falls Trail by Day of the Week
June 1986



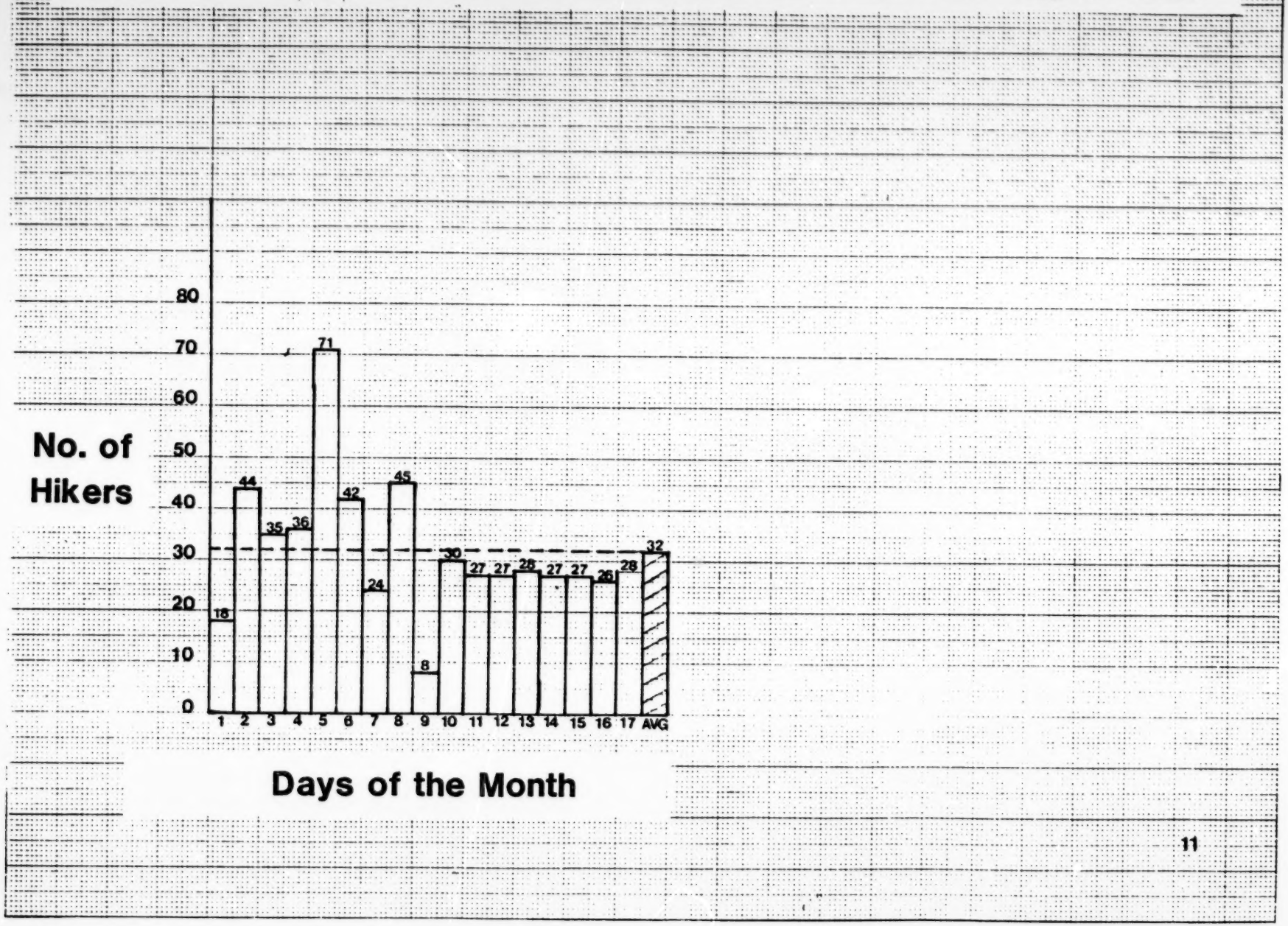
Number of Hikers on Bakers Brook Falls Trail July 1986



PREPARED BY: A. C. Br[illegible]

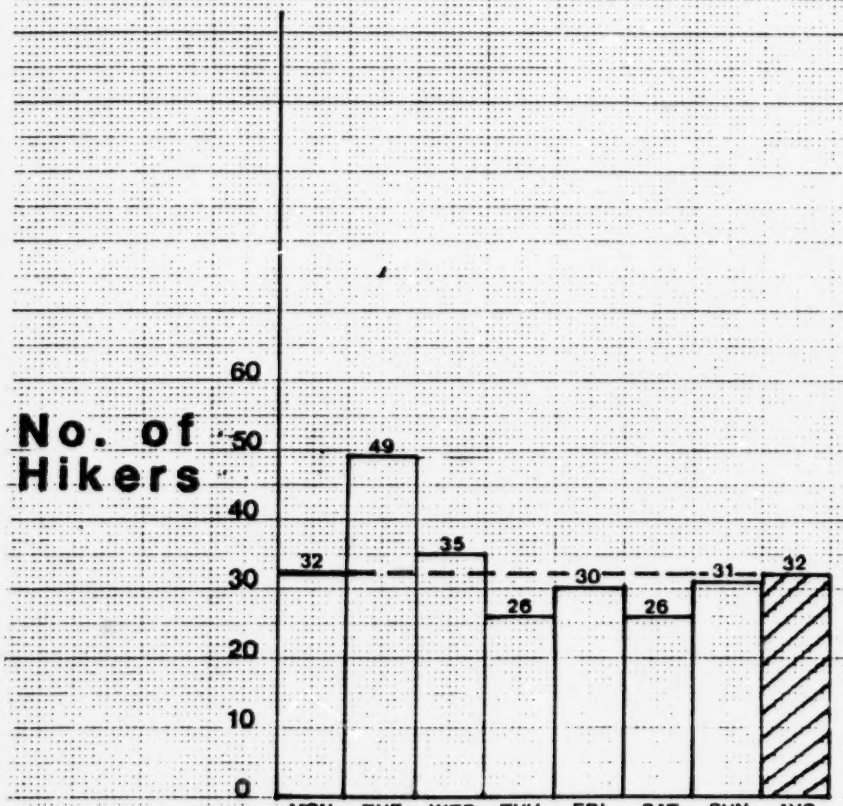

Average No. of Hikers on Bakers Brook Falls Trail by the Day of the Week
July 1986
No. of People
60
55
50
45
40
35
30
25
20
15
10
5
0
50
59
35
49
40
24
24
41
MON
TUE
WED
THU
FRI
SAT
SUN
AVG
4
5
5
5
4
4
4
No. of Days Counted
10

Daily Count of No. of Hikers on Bakers Brook Falls Trail August 1986



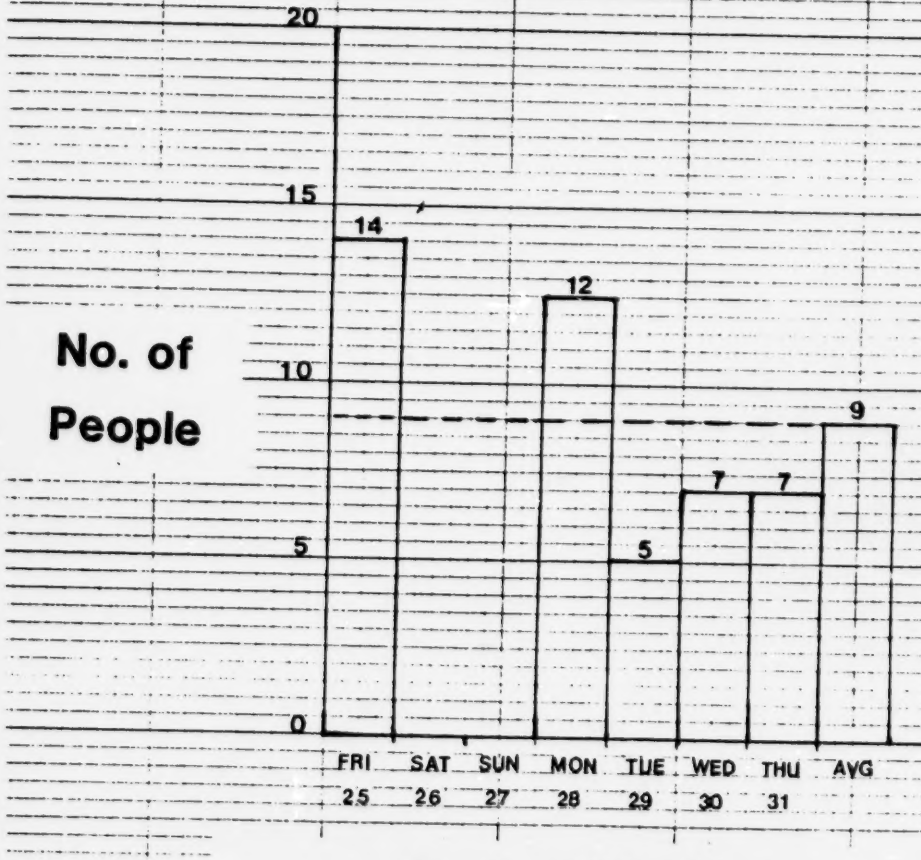
PREPARED BY: A.C.Brown

Average No. of Hikers on Bakers Brook Falls Trail by Day of the Week August 1986



PREPARED BY: A.T. Brown

Daily Count of Hikers on Stanleyville Trail July 1986

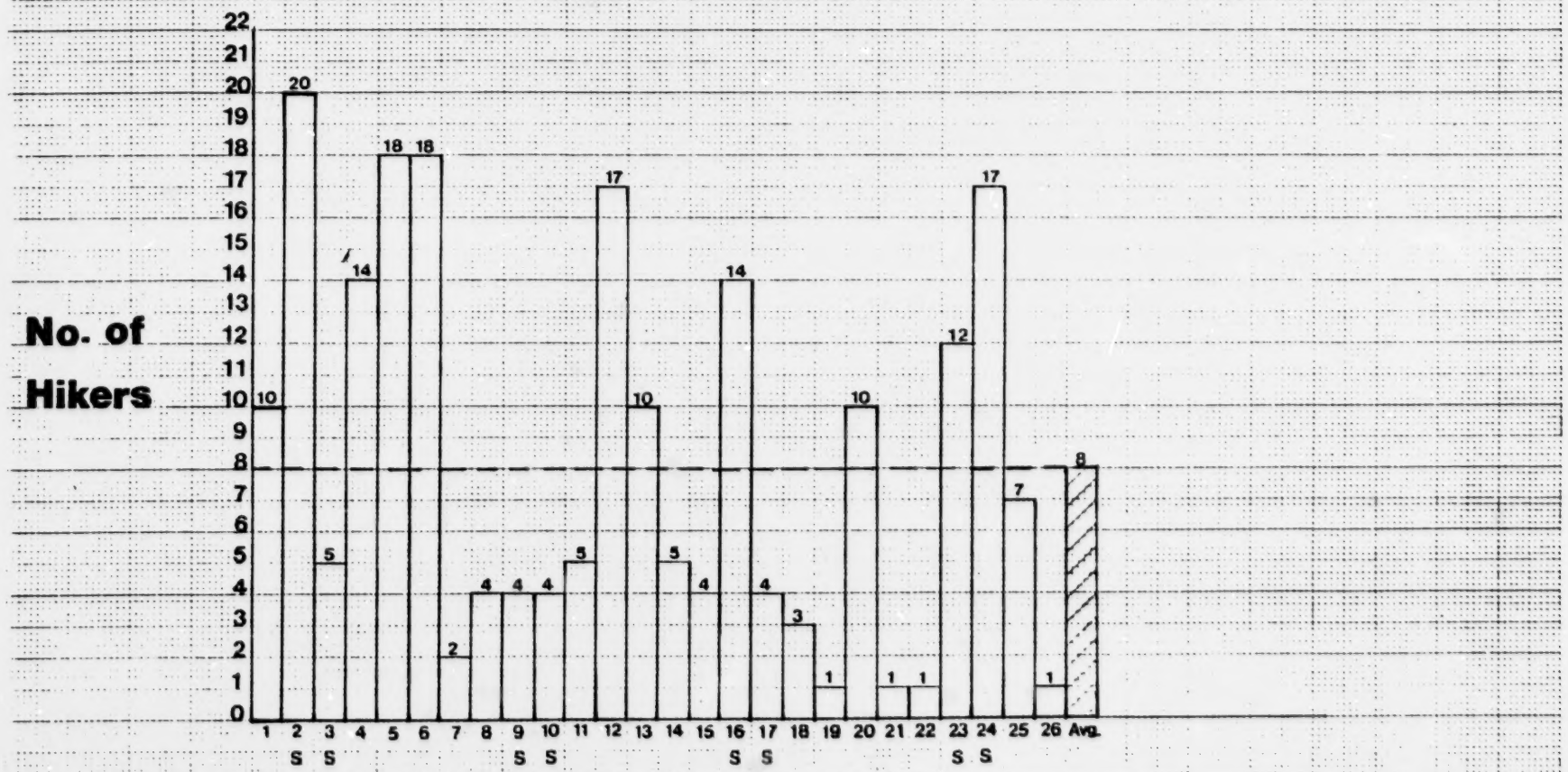


13

PREPARED BY: A.C.Brown

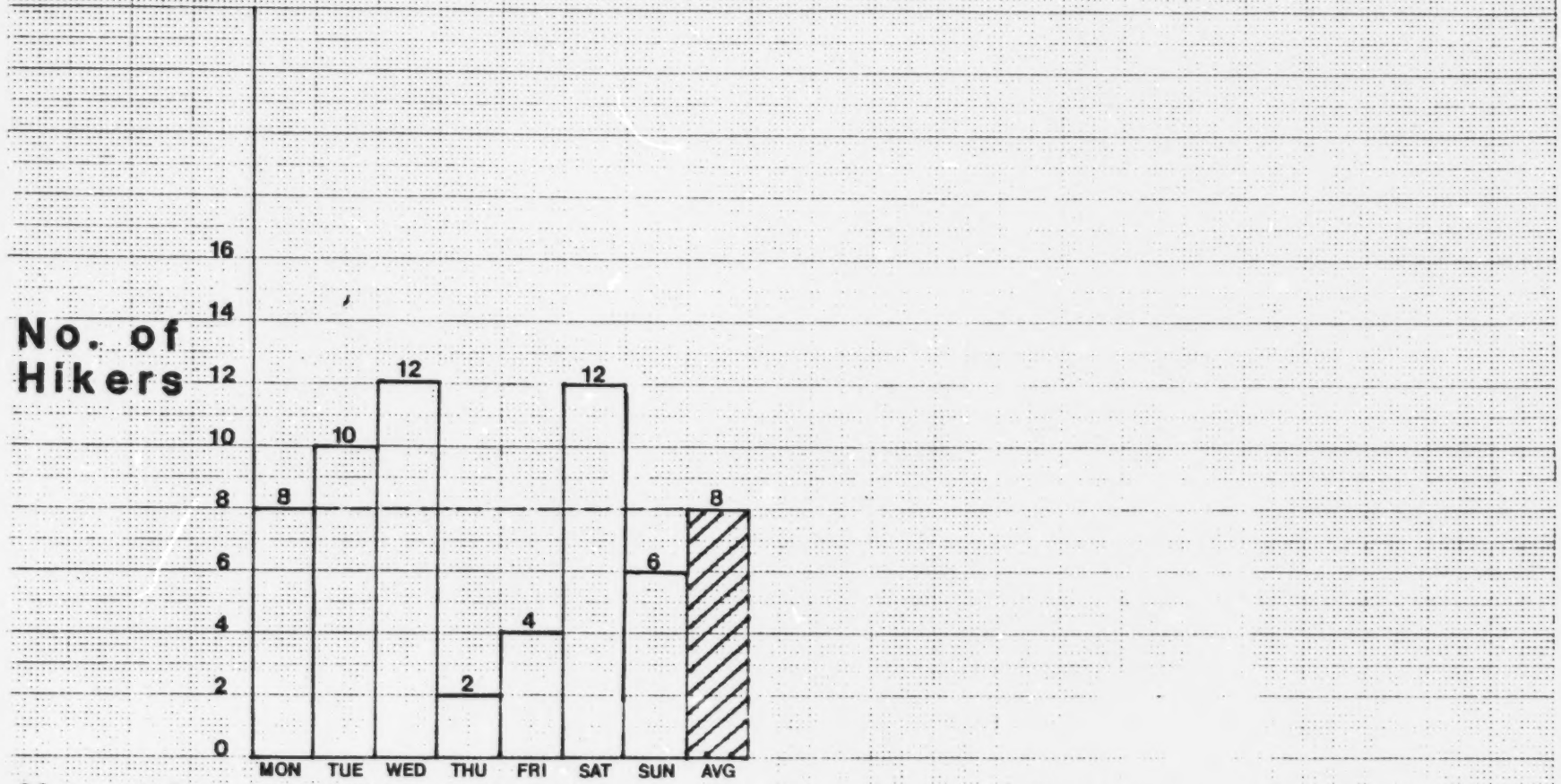
Daily Count of No. of Hikers on Stanleyville Trail

August 1986



PREPARED BY: A.C.Brown

Average No. of Hikers on Stanleyville Trail by Day of the Week August 1986



PREPARED BY: A.C.Brown

APPENDIX A: QUESTIONNAIRES

TRAFFIC PARTITION SURVEY

1986

GROS MORNE NATIONAL PARK

1. I.D. # ☐☐☐☐☐ (1–5)
2. Interviewer ☐ (6)
3. Day ☐ (7–8)
4. Month ☐ (9)
5. Time ☐☐☐☐ (10–13)
6. Language: English 1 French 2 ☐ (14)

Hello, my name is _____, Gros Morne National Park is doing a survey to help us plan for the future of Gros Morne National Park. Would you help us by answering a few questions? All of your answers are STRICTLY CONFIDENTIAL.

---

7. Transportation Mode (Do not ask): ☐☐ (15–16)

1. ☐ Passenger Vehicle
2. ☐ Travel Trailer
3. ☐ Tent Trailer
4. ☐ Truck or Van Camper
5. ☐ Motor Home
6. ☐ Charter Bus
7. ☐ Scheduled Bus
8. ☐ Park Vehicle
9. ☐ Single Axle Trucks Over Two Tons
10. ☐ Tandem Trucks
11. ☐ Semi-Trailers (Fifth Wheel)
12. ☐ Fifth Wheel Camper Trailer
13. ☐ Other Commercial Vehicles
14. ☐ Walk 14
15. ☐ Other (Specify)_____

8. Where is your permanent residence? ☐☐ (17–18)

City/Town/Village | Province/State | Country

9. What is the purpose of your present visit to the park? ☐ (19)

1. ☐ On a recreational trip to the Park
2. ☐ Visiting friends or relatives in the Park Area
3. ☐ Just passing through the park on a pleasure trip
4. ☐ Just passing through the Park on personal or other business.

Go to Q. 10

5. ☐ A Parks employee on business.
6. ☐ On Park-related business

End Interview

ID OF INTERVIEW FOR PARK RESIDENTS AND SWERS 5 and 6 IN QUESTION 9.

0. Have you finished this visit to the park or will you be re-entering the park today? ☐ (20)

1. ☐ Yes, final exit for this visit *(Go to Q. 11)*
2. ☐ No, will re-enter today *(End Interview)*

. Have you stopped anywhere in the park during your present visit? ☐ (21)

1. ☐ Yes *(Go to Q.12)* 2. ☐ No *(End interview)*

. During your present visit to the park, which if any of the following park facilities have you used?

1. ☐ Visitor Reception Centre (22)
2. ☐ Campground (23)
3. ☐ Picnic Areas (24)
4. ☐ Trails (25)
5. ☐ Look-Offs (26)
6. ☐ Lobster Cove Lighthouse (27)
7. ☐ Other *(specify)* _____ (28)

13. About how long have you been in the park on this visit? ☐☐ (29–30)

(a) _____ hours or (b) _____ nights ☐☐ (31–32)

14. Including yourself, how many people are travelling in your vehicle? *(including attached trailers, etc. — ask only if necessary)* ☐☐ (33–34)

Persons: _____

15. (For Hwy. 430 N. Only)
As a continuation of this trip, are you planning to visit:

A. L'Anse aux Meadows National Historic Park? (35)

1. ☐ Yes 2. ☐ No 3. ☐ Not Sure 4. ☐ Never Heard of it

B. Port au Choix National Historic Park? (36)

1. ☐ Yes 2. ☐ No 3. ☐ Not Sure 4. ☐ Never Heard of it

16. (For Hwy. 430 S. and Hwy. 431 only)
On your present trip from home, have you visited:

A. L'Anse aux Meadows National Historic Park? (37)

1. ☐ Yes 2. ☐ No

B. Port au Choix National Historic Park? (38)

1. ☐ Yes 2. ☐ No

THANK YOU FOR YOUR COOPERATION

TROUT RIVER ROAD
PARTITION SURVEY
1986
GROS MORNE NATIONAL PARK

1. I.D. # ☐☐☐☐ (1–4)
2. Interviewer
3. Day
4. Month
5. Time ☐ (5)
6. Language: English 1 French 2 ☐☐ (6–7)

☐ (8)

Hello, my name is _____, Gros Morne National Park is doing a survey to help us plan for the future of Gros Morne National Park. Would you help us by answering a few questions? All of your answers are STRICTLY CONFIDENTIAL.

☐☐ (9–10)

☐ (11)

---

7. Transportation Mode (Do not ask): ☐☐ (12–13)

1. ☐ Passenger Vehicle
2. ☐ Travel Trailer
3. ☐ Tent Trailer
4. ☐ Truck or Van Camper
5. ☐ Motor Home
6. ☐ Charter Bus
7. ☐ Scheduled Bus
8. ☐ Park Vehicle
9. ☐ Single Axle Trucks Over Two Tons
10. ☐ Tandem Trucks
11. ☐ Semi-Trailers (Fifth Wheel)
12. ☐ Fifth Wheel Camper Trailer
13. ☐ Other Commercial Vehicles
14. ☐ Walk 14
15. ☐ Other (Specify)_____

8. Where is your permanent residence? ☐☐ (14–15)

_____
City/Town/Village Province/State Country

IF TROUT RIVER RESIDENT, END OF INTERVIEW.

9. What is the purpose of your present trip on the Trout River Road? ☐ (16)

1. ☐ On a recreational trip to the Park — *Go to Q. 10*
2. ☐ Visiting friends or relatives — *Go to Q. 10*
3. ☐ A Parks employee on business — *Go to Q. 10*
4. ☐ On Park-related business — *End Interview*
5. ☐ On other business or personal business — *End Interview*

10. Including yourself, how many people are travelling in your vehicle? *(including attached trailers, etc. — ask only if necessary)* ☐☐ (17–18)

Persons: _____

11. Did you visit the Community of Trout River Today? ☐ (19)

1. ☐ Yes 2. ☐ No

12. *(If yes)* While visiting the Community of Trout River, did you visit Trout River Pond? ☐ (20)

1. ☐ Yes 2. ☐ No 3. ☐ Not Sure

13. While on the Trout River Road, did you:

A. Stop at the Tablelands Exhibit? 1. ☐ Yes 2. ☐ No ☐ (21)

B. Hike the Green Gardens Trail? 1. ☐ Yes 2. ☐ No ☐ (22)

RECORDING DATA ON CAMPING PERMIT STUB

There are a number of steps that have to be carried out in order to come out with a report on campers using a campground.

1. Camping Permit. The camping permit will be filled out as per the examples. The additional information to be recorded on the stub, kept at the kiosk, (1) is the number in the party, (2) type of camping unit, (3) first stay in campground or repeat stay, (4) the total number of nights spent in the campground and (5) origin - (a) name of county (NON-NFLD NP'S), (b) name of community/town (NFLD NP's ONLY) and (6) date in and date out, (7) questionnaire I.D. No., if applicable, (8) with or without boat.

(SEE EXAMPLE BELOW)

CAMPING PERMIT

Parks Canada / Parcs Canada	B·07249
CAMPING PERMIT VALID ONE DAY ONLY NOT TRANSFERABLE 1885 1985 Canada	SITE 25 DATE 6/7/86

CAMPER'S STUB

I.D. NO. 10001 B·07249	← HANDBACK QUESTIONNAIRE I.D. NO.
NAME TT Y Joe Blow 4	← CAMPING UNIT TYPE ← NO. OF PEOPLE IN PARTY
LICENCE NO. 9 AAA000 NFLD.	← CENSUS DIVISION ← ORIGIN
SITE NO. 25 / Y	← Y - WITH BOAT ← N - WITHOUT BOAT
DATE 6-7-86	DATE IN →
8-7-86	DATE OUT →

Y-FIRST STAY
N-REPEAT VISIT →

STUB TO BE KEPT IN KIOSK

10. (a) Could the existing facilities at this campground be improved in any way? □ 52

1 ☐ Yes *(Go to Question 10B)*

2 ☐ No *(Go to Question 11)*

(b) In what way? □□ 53 54

1. _____
2. _____
3. _____
4. _____

11. (a) On this visit to Gros Morne, was your party turned away from any campground in this park because it was full? □ 55

1 ☐ Yes *(Go to Question 11B)*

2 ☐ No *(Go to Question 12)*

(b) Which park campground was this? □ 56

1 ☐ Berry Hill

2 ☐ Lomond

3 ☐ Shallow Bay

4 ☐ Green Point

12. Do you have any further comments?

_____

_____

THANK YOU FOR YOUR TIME AND COOPERATION

Canada

Environment Canada — Parks

Environnement Canada — Parcs

CAMPGROUND SURVEY

1986

GROS MORNE NATIONAL PARK

DEAR PARK VISITOR:

Environment Canada, Parks, is doing a survey to help us plan for the future of Gros Morne National Park. Would you help us by answering a few questions? All of your answers are STRICTLY CONFIDENTIAL.

INSTRUCTIONS: Please complete this questionnaire just before the end of your stay at this campground. If you have stayed at more than one campground during this visit, please answer for the present campground only. Please check (✓) the block ne to your answer. You may leave the questionnaire with the kiosk attendant or deposit in the survey box near the Kiosk.

#_____

PLEASE DO NOT WRITE IN SHADED AREA.

1. **Which of the following best describes your camping party?**
   1 [ ] By yourself 5. [ ] Two couples
   2 [ ] One couple 6 [ ] An organized group
   3 [ ] One family with children 7. [ ] A group of friends
   4 [ ] Two families with children 8 [ ] Other *(specify)*

2. **Is this the first trip your party has made to Gros Morne National Park?**
   1 [ ] Yes 2 [ ] No

3. **Why did your party choose to stay in this campground? *(Choose all which apply)***
   1. [ ] Been here before and liked it
   2 [ ] Like the facilities offered at this site
   3. [ ] Close to other Park sites/facilities
   4. [ ] Near ocean
   5 [ ] Recommended by other park visitors
   6 [ ] First campground we came to
   7 [ ] Other campgrounds were full or too crowded
   8 [ ] Close to home
   9 [ ] Convenient stop-over
   10 [ ] Liked the location
   11 [ ] The size of the campground
   12 [ ] Read about it in the Park literature
   13 [ ] Recommended by Park staff
   14 [ ] Other *(specify)*

4. ***While staying at this campground,* which, if any of the following activities did you or any member of your party participate in?**
   1 [ ] bicycling 2 [ ] swimming
   3 [ ] boating 4 [ ] backpacking
   5 [ ] fishing 6 [ ] bird watching
   7 [ ] hiking 8 [ ] interpretative programs
   9 [ ] picnicking 10 [ ] sightseeing
   11 [ ] Other *(specify)*

5. **(a) *While staying at this campground,* did you or any member of your camping party hike any trails ?**
   1 [ ] Yes *(Go to Question 5B)*
   2 [ ] No *(Go to Question 6)*

   (b) Which trails did you or any member of your camping party hike *while staying at this campground?*
   1 [ ] Berry Hill 2 [ ] Green Gardens
   3 [ ] Berry Hill Pond 4 [ ] James Callaghan
   5 [ ] Baker's Brook Pond 6 [ ] Lomond
   7 [ ] Western Brook Pond 8 [ ] Stanleyville
   9 [ ] Other *(specify)*_____

6. **(a) *While staying at this campground,* did you or any member of your party visit any of the park sites or facilities?**
   1 [ ] Yes *(Go to Question 6B)*
   2 [ ] No *(Go to Question 7)*

   ***(b) While staying at this campground,* which site or facilities did you or any member of your camping party visit?**
   1 [ ] Visitor Reception Centre
   2 [ ] Lobster Cove Head Lighthouse
   3 [ ] Western Brook Pond
   4 [ ] Trout River Pond
   5 [ ] Shallow Bay Day Use Area
   6 [ ] Other *(specify)*_____

7. ***While staying at this campground,* did you or any member of your party take the Western Brook Pond Boat Tour?**
   1 [ ] Yes 2 [ ] No

8. **Overall, how satisfied was your party with its stay at this campground?**
   1 [ ] Very satisfied 4 [ ] Very dissatisfied
   2 [ ] Satisfied 5 [ ] No opinion
   3 [ ] Dissatisfied

9. **Overall, how satisfied was your party with the existing facilities at this campground?**
   1 [ ] Very satisfied 4 [ ] Very dissatisfied
   2 [ ] Satisfied 5 [ ] No opinion
   3 [ ] Dissatisfied

(OVER)

LOMOND RECORD SHEET

INSTRUCTIONS: SEE ADMINISTRATION AND CODING MANUAL

1. Observer _____ 2. Day (1-2) /_/_/ 3. Month (3) /_/ Page # /_/_/_/ (4-6)

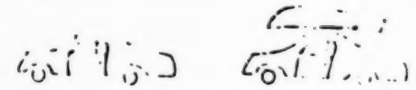
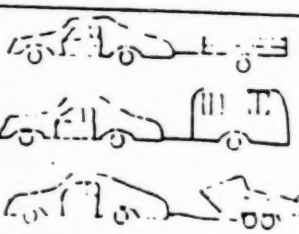
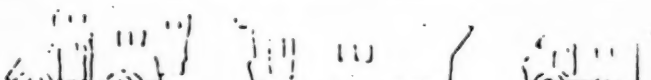
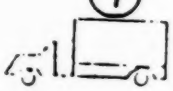
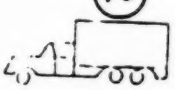
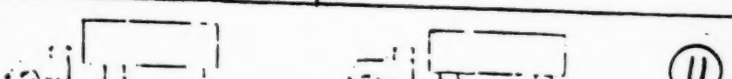
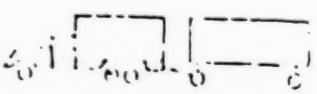
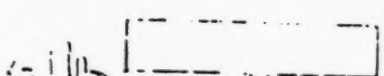
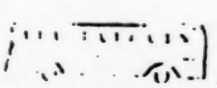
	ALL ENTERING VEHICLES		DAY USERS ONLY				
I.D. # (7-8)	ENTRY TIME (9)	USER TYPE (10)	**IF DAY USER ASK:** "ARE YOU ENTERING LOMOND FOR THE FIRST TIME TODAY?" IF NO, END, CODE 2. IF YES, CODE 1, CONTINUE (11)	VEHICLE TYPE (12)	VEHICLE ORIGIN (13-14)	**PARTY SIZE IF NECESSARY ASK:** "HOW MANY PERSONS ARE IN YOUR VEHICLE" (15-16)	**ASK:** "IS THIS YOUR FIRST VISIT TO LOMOND?" YES = 1 NO = 2 (17)
01	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/
02	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/
03	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/
04	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/
05	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/
06	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/
07	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/
08	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/
09	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/
10	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/
11	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/
12	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/
13	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/
14	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/
15	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/
16	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/
17	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/
18	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/
19	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/
20	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/
21	/_/	/_/	/_/	/_/	/_/_/	/_/_/	/_/

APPENDIX B: VEHICLE CLASSIFICATION AND NEWFOUNDLAND ORIGIN ZONES

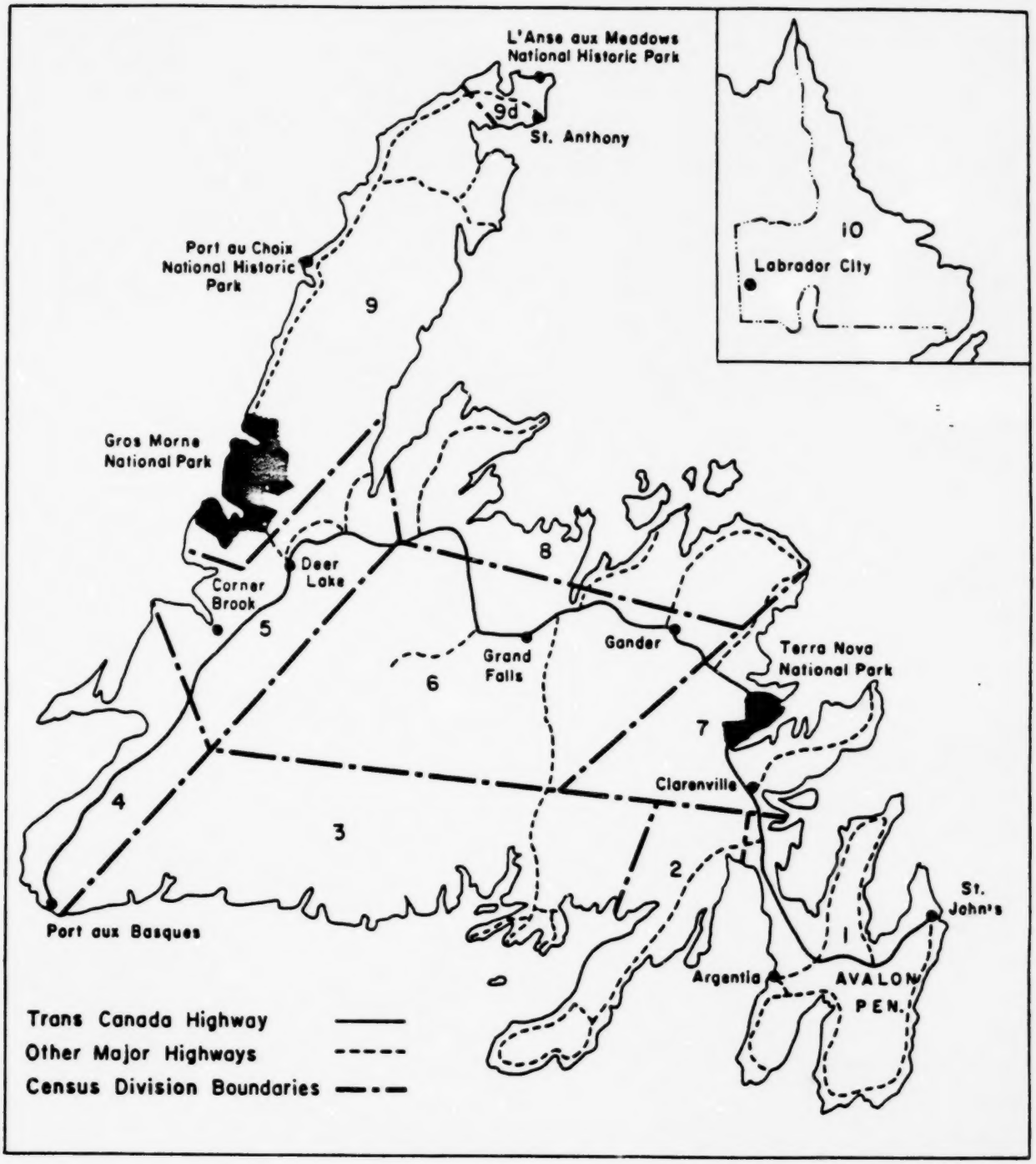
DEFINITION OF TYPES OF UNITS USING PARK

Passenger Vehicle: (01)	Car, Half ton or van with no attachments, not used for camping.
Travel Trailer: (02)	A trailer designed to be towed behind a motorized vehicle and of such a size and weight not to require a special highway movement permit. They range from 12 - 35 feet in length.
Tent: (03)	A camping unit mounted on wheels and constructed with collapsible sidewalls that fold for towing by a motorized vehicle.
Truck Camper: (04)	A unit designed to be loaded on to or attached to back or chassis of a truck.
Van Camper: (04)	A panel type truck with any two of the following: kitchen, toilet or sleeping facilities, 110 volt hookup, fresh water storage, water hookup, or top extension.
Motor Home: (05)	Built on or as an integral part of a self-propelled motor vehicle chassis and may be equipped similar to self-contained units.
Charter Bus: (06)	A bus carrying an organized group.
Scheduled Bus: (07)	A regularly scheduled bus (e.g. Viking Express).
Park Vehicle: (08)	Any vehicle clearly identifiable as an Environment Canada vehicle.
Single Axle Truck Over Two Tons: (09)	See attached diagram.
Tandem Trucks: (10)	Includes dump trucks and other vehicles with two axles in back - see diagram.
Semi-Trailers (Fifth Wheel): (11)	See attached diagram.
Other Commercial Vehicle: (12)	Any vehicle belonging to a private firm (e.g. construction vehicles, delivery vehicles, etc.). Not classified under 9, 10, or 11 above.
Fifth Wheel Camper Trailer: (13)	Equipped the same as a self-contained camping unit but is pulled by a pickup or flat bed truck that has a fifth wheel attachment (i.e.,horizontal, rotating coupling attaching trailer to cab).

VEHICLE CLASSIFICATION

NO.1 PASSENGER UNITS		
NO.2 RECREATION UNITS		
		
NO.3 SINGLE UNIT TRUCKS	(9) 	(10) 
NO.4 MULTI-AXLE TRUCKS		(11)
		(11)
		(11)
NO.5 Bus		

NEWFOUNDLAND ORIGIN ZONES



APPENDIX C: CLOSSARY OF TECHNICAL TERMS

GLOSSARY OF TECHNICAL TERMS

Biased Sample

A sample selected in such a manner that certain types of cases have a greater chance of being included than other types of cases.

Coding

A research procedure in which the data collected are categorized with unique values. For example a "yes" response might be coded as 1, a "no", 2. This procedure facilitates the transformation of data into the computer.

Independent Variable

One whose occurrence or change results in the occurrence or change in another variable (dependent variable). In terms of a cause-effect relationship, the independent variable is the cause whereas the dependent variable is the effect.

Population

The aggregate of all the cases that conform to some designated set of specifications (e.g. the population might be considered as all visitors to a national park during 1983). Sometimes called the universe.

Population element

A single member of a population.

Population Parameter

The measured characteristics of a statistical population or universe.

Representative Sample

A sample that has essentially the same distribution or relevant characteristics as the population from which it was drawn.

Sample

A group of elements selected from the population with the intention of finding out something about the population.

Sampling, Multi-Stage

Sampling carried out in two or more stages. In the first stage larger units are selected, and in the second stage smaller units (or the individual cases, depending on the number of stages) are selected from within the larger units.

Sampling Error

The difference between the true population parameter and the parameter estimate obtained from a sample of the population. Most sociological research deals with samples rather than total populations, and therefore is subject to sampling error. The attempt is made to minimize sampling error by obtaining a sample that is as representative as possible of the population. However, even with the best sampling techniques there is always some difference between the characteristics of a total population and the characteristics of a sample. When proper sampling procedures are followed, statistical techniques may be employed to estimate the size of the sampling error.

Sampling Unit

A unit used in selecting a sample. In may types of samples, as the simple random sample, the sampling units are simply the individual cases that comprise the sample. In multiple-stage sampling, however, the first stage or primary sampling units are aggregates or clusters of cases (such as geographic areas) from within which the final sampling units, that is, the individual cases, are selected.

Simple Random Sample

A sample selected by a process such that each element in the population has an equal chance of being included in the sample.

Stratified Sample

A sample selected by dividing a population into categories (strata) on the basis of certain relevant variables (e.g. day users vs campers). A determined number of cases is selected from each category, thus

assuring that each category will be represented in the sample.